

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 83.

NEW YORK, SATURDAY, OCTOBER 31, 1903.

No. 18.

SPECIAL ARTICLE.

SPECULATIVE INVESTMENTS FOR PHYSICIANS.

THIS paper is presented after much hesitation in response to a request made by Dr. William Osler, who has viewed with extreme regret the growing tendency among doctors to indulge in mining and other speculative ventures. It is well for medical men to know that so eminent and distinguished a leader as Dr. Osler has found time in the midst of his manifold professional cares and responsibilities to interest himself in behalf of the younger physicians. His solicitude for their welfare has been sufficient to prompt him to devise means, if possible, for the practical solution of one of the unfortunate problems confronting the members of his profession. It was decided to urge upon some representative of the West, which was supposed to be the chief habitat of the speculation fever and the endemic source of the disease, the necessity of contributing a practical article on its etiology, prophylaxis and treatment. Its clinical manifestations and history are all too familiar to demand recapitulation. That the affection is widespread and increasing rapidly in prevalence and virulence with most serious after-effects, no one who is at all familiar with the situation can for a moment deny. The disease flourishes at all seasons, and affects all ages of medical men to whom a single attack unfortunately does not furnish complete immunity. It may be said to correspond to the clinical type of some of the acute infectious diseases in that it exhibits a definite cyclic sequence of events. This relates with especial emphasis to the sequelæ. The micro-organism is undoubtedly ubiquitous, and the degree of communicability, therefore, is measured essentially by the receptivity and virile freshness of the soil. Varied as is the period of incubation, the mode of onset is usually acute and characterized by a stage of mental efflorescence. Termination usually occurs by crisis. Although the prognosis is unfavorable the disease is seldom fatal. It frequently leaves, however, an indelible mark upon its victims.

A request to discuss this widespread affection coming from such a source, prompted by such ennobling motives, should not fail to inspire a ready acquiescence. A victim of the disease, perhaps not yet thoroughly immune, was unknowingly selected to describe its possible ravages and suggest means of prevention. The necessity for perfect frankness together with an appreciation of the utter incongruity of the position assigned me, compels the recital of the anecdote of the man unexpectedly called upon to participate in a temperance revival. His propensities to indulge in the use of alcohol were

known only to himself, but unfortunately he was somewhat under its influence, when to his great embarrassment he was invited to address the audience. After stammering somewhat incoherently about the dire results of its abuse he hiccupped his apologies to the astonished gathering and said he wished to help the cause along and knew nothing better than to offer himself as a frightful example. It seems fitting, perhaps, to offer the same preliminary statement in justification of my own remarks.

Ample opportunities for observation, among others and a vivid personal experience, should afford one a sufficient authority with which to attempt such exposition. As predisposing causes may be mentioned, the spirit of the times, the desire to grow rich rapidly, the effort to obtain something for nothing, the general development of the craze among all classes, the feeling of dissatisfaction with existing conditions, the tendency to unrest, and last but not least, a somewhat extravagant method of living.

An undue susceptibility applies to the medical profession through lack of preparation and of experience with commercial problems, necessarily involving insufficient acumen and business sagacity. The very nature of the daily work of the physician, the effort to relieve human suffering and prolong life with the benevolence of disposition and kindness of soul thus unconsciously inculcated, together with the frequent inability to acquire wealth despite most laborious effort and the assumption of grave responsibilities, renders the medical man an easy mark for designing and unscrupulous promoters. This lack of individual resistance is lamentably true and has long been recognized and taken advantage of by wily and sharp-visaged schemers.

Owing to these predisposing causes it is not surprising that he often becomes a ready prey to the attractive allurements of the bland-spoken manipulator. In view of these facts is it not a source of surprise that medical journals should further add to the temptations of their readers by introducing prominently notices of wild-cat investments clothed with all the attractions that bold type and conspicuous insertions may add to extravagant statements of assured profits calculated to appeal to the cupidity of its singularly unsuspecting victims. That medical journals, designed ostensibly for the material benefit and scientific advancement of physicians, supported exclusively by doctors and subscribed to and read solely for knowledge to be gained, should permit the very class upon which it depends for support to be victimized through its columns of advertising matter solely for commercial considerations, is a subject worthy of serious thought.

It may not be out of place to add that a single issue of a certain journal not long ago contained no less than four flaming accounts of definite profits to accrue from investments in as many mining enterprises. One announces that it is the "Doctors' Mining Company," another states that the glorious opportunity to get rich is open to physicians only, because one of its officers is a physician himself and wishes the benefits to be confined exclusively to his brother practitioners. Such generous and self-sacrificing consideration is a marvel in itself but speaks volumes as to the gullibility of the profession, else such a monstrous appeal would not have proven profitable. Such disinterested solicitation from strangers should be sufficient evidence to the wary of the insincerity of their motives and the inherent flimsiness of their ensnaring schemes. "Methinks the lady doth protest too much" is an expression capable of unique application to such empty vaporings as these. It is well to remember that the shark is simply after his victim's money and is capable of about as much consideration and mercy as is accorded the luckless sailor whose body is snapped in twain by the ferocious and hungry monster from whom the fitting appellation is derived.

Residents of the West have long since learned to beware of so-called friends, to say nothing of strangers, who approach with suggestions of entrance into mining stock propositions as alleged, on the ground floor. It is usually asserted that such opportunities of a lifetime have to be taken advantage of at the moment as positive assurances are given of immediate appreciation of values, while glowing visions of enormous dividends are presented before the bewildered eyes of the would-be purchaser. It may be added that the luckless investor finds later that instead of getting in upon the ground floor, he is occupying apartments in the attic, or possibly upon the roof, from which the descent to the cellar is more sudden than agreeable. Far be it from my purpose to decry mining as an industry or to belittle other legitimate ventures of a more or less speculative character. The contention is simply made that even such for physicians are not worthy of a moment's thought. It is assuredly quite as unfortunate in the end to attempt a mining venture, no matter how legitimate per se, when handicapped by lack of experience and knowledge as to repose blind confidence in others who are unhandicapped by conscience. The old axiom, "Let the shoemaker stick to his last" has been paraphrased in the language of the day, "Every man to his own graft." It cannot be denied that this homely yet pungent expression applies with more force to the doctors than to the followers of any other vocation in life.

If there is any class of men whose daily experience in rubbing up against raw human nature should finally inculcate conservatism and caution, and yet, as a matter of fact, who do exhibit a more sublime and lamb-like trust in the protection of wolves, such a class has yet to be produced.

Let it be understood that mining is truly an honorable industry and one of the many valuable resources of the West. Though not without its element of chance it is perfectly legitimate and when pursued in accordance with mining and business principles by men especially adapted by experience, patience, nerve and money, is an enterprise offering the possibility of satisfactory returns. At its best, however, there is always the miner's hazard which should never be lost sight of. Under the most favorable circumstances the risk must be regarded as considerable, even to those on the inside, assuming that operations are confined to the actual legitimate development of the property. If, however, a stock jobbing scheme is manipulated the promoters are like the sure thing men in that they take no chances, not even a gambler's risk. What opportunity has an outsider, many miles away, under such circumstances, to ever see the color of his money. He may as well bid it Godspeed and kiss it good-bye in the beginning. It may be that by the accident of chance an occasional successful result may be attained. If such exception to the general rule should actually occur let it not be forgotten that if speculation is persisted in, it is solely a question of time when the person temporarily successful will eventually have shared the same fate as his less fortunate associates. "Soon for some, later for others, finally for all," is a terse and true expression of the unavoidable result. "They await alike the inevitable hour."

The paths of speculation lead but to the financial grave. The practical essence of the whole matter is that the doctor is bound to lose his money in the end if he continues his speculation. When he goes up against another man's game there can be but one result. Every kind of a percentage is against him. There can be no such thing as an even break on the relative chances. It can be very positively assumed that the man selling stock knows more about the intrinsic value of the property and more of the probabilities of the future than the one to whom he is trying to sell. The doctor is placed at a tremendous disadvantage from the beginning in such transactions. In the same way if he is inveigled into the open market he has about the same chance as the proverbial snow-ball in Hades. It is the old story again of the other man's game, which is so surely played to win. The commissions which are alone sufficient in the end to impoverish the outsider and enrich the broker, do not by any means constitute the full extent of the burden handed to the investor in the beginning. He is obliged to use his own judgment about a matter concerning which he knows absolutely nothing, and which is sufficiently difficult and trying to bankrupt professional traders. The average man is so constituted that he will be glad to accept a small profit, but never a small loss. The latter has got to assume large proportions before a certain stubbornness, which is mistaken for nerve, will permit serious thought of liquidation.

After hanging on by his eyelids in his effort to remargin, and when every resource has finally become exhausted, the unfortunate speculator is compelled by dint of sheer force of circumstances to meet his loss. He invariably runs from a profit, but stays to be whipped in face of a loss. This factor inherent to nearly everyone is the real percentage in the game of speculation. As one patient, a broker, remarked, "If they keep coming we get their collar buttons." The fortunate speculator is the one who loses early in the game and then lets it alone. The one to be pitied is the one who wins in the beginning. The greatest failures have come from early successes, and the greatest successes in life from early failures.

The only way to make money out of speculation is to let it alone. Indulgence, therefore, in such means of securing wealth is deprecated for the doctor because of its universal impracticability and utter hopelessness. A stronger and higher argument against the merest trifling with speculative investments for doctors is, that such a course is unalterably and fundamentally opposed to the very nature of a physician's work for which there have been expended years of study and preparation, much money, and in many instances great energy and sacrifice incident to early struggles. To him whose purpose in life, whose habits of thought and action are along radically different channels, whose responsible obligation demands concentration of energy, whose very leisure should be devoted to professional improvement, whose aims and aspirations are supposed to be lofty in character, whose daily life is devoted to charity and relief of human ills, a recourse to purely mercenary, commercial and speculative enterprises affords a species of degradation for which there is no sufficient justification or valid excuse. The peculiar requirements of mind, intellect and judgment necessary for the honorable and satisfying practice of medicine are inherently and diametrically different from those qualities absolutely essential to shrewd and successful speculation. Let no single person hope to succeed in each of these diverging channels of life. Each avocation is as distinctly opposed to the other as was the mission of Lorenz in Chicago different from that of Canfield in Saratoga and New York. One devotes his intellect, his nervous strength and his very life to the relief of great physical misfortunes, the other taking advantage of the weakness and frailty of human nature strives to separate individuals from their money, not only without tangible return, but at the expense of suffering and poverty with not infrequently suicide as a not too remote result. Those of us who have been permitted to witness the spectacle of little white-faced children, who had been born into the world misshapen and were destined to carry their burden through life, brought by their grief-stricken parents into the presence of the celebrated physician from Vienna, to receive from him the cheerful smile, the kindly greeting and

the relief of their deformity solely through the influence of his powerful and yet exquisite manipulation, cannot fail to be profoundly impressed by its eminently humanizing influence. In scarcely a less degree the life of the conscientious physician in his every-day work, though admittedly less spectacular, is equally ennobling and praiseworthy. While the average practitioner of medicine is not afforded the opportunity for the popular and professional triumph which is accorded to Prof. Lorenz because of the peculiar nature of his work, the distinguished ability and the inspiring presence, yet he may have the consciousness that, inspired by the loftiest motives he, nevertheless, is employing his personal gifts to the best use.

How thoroughly must the physician be equipped to meet the exact requirements and to assume the enormous responsibilities of his calling? To what an extent must he be fitted by previous educational advantages and natural mental endowment and a suitable environment, to form scientific conceptions, to select facts wisely and construe them properly, to recognize and guard against errors, fallacies and pretense, and to maintain the eternal fitness of things by intelligent, conservative judgment? He must be prepared to analyze experience, to interpret properly scientific data, to adjust and summarize medical knowledge and apply it to the varying conditions of life. The ability and desire to faithfully execute his trust and conform to the obligations of his stewardship is utterly lacking amid the distractions and excitement incident to all forms of speculation. The physician is not only unfitted to a very great extent to perform the practical work which he has assumed, but is also, through the influence of speculation, unfortunately threatened by a certain inevitable transformation of character. The peculiar nature of the daily experience of the family physician, the intimate association with disease both physical and moral, the hourly observation of bodily suffering and mental anguish, the guarded trust of imposed confidences, the contact with misfortune, misery and poverty, do not fail of themselves in establishing a character which constitutes an asset not to be measured in dollars and cents. This golden influence is necessarily modified and perhaps destroyed if alloyed by the ceaseless and disappointing struggle for the gold itself. Is it possible to reconcile the placid composure, the gentle dignity, the sympathetic smile of the true physician with the restless eye, the nervous manner, the sharp features and furtive expression of the professional speculator. An existence, however, devoted exclusively to the relief of material ills, permeated by the spirit of charity, and controlled by the desire to increase the happiness of others, will strengthen the sense of one's obligations, add to the further development of his moral nature and enable him to fulfil his highest destiny as man and represent the true nobility of his profession. In so far as the practice of medicine is pursued in accordance with

these principles and actuated by the love of science, ignoring all that tends to commercialism and speculation, will it be found successful, satisfying and elevating. The degradation of the profession to a purely mercenary basis either with or without speculation will yield a financial remuneration entirely inadequate to the capital and energy invested and utterly insignificant in comparison with the loss of one's self-respect, the esteem of brother physicians and the confidence of the community. The acquisition of wealth or of especial prominence is not accorded to the medical practitioner in the legitimate exercise of his profession. Should these be secured through the favor of fortune it is usually at the sacrifice of at least a portion of his usefulness in his more appropriate sphere. He may, however, expect to obtain a moderate income, to be able to provide against want for his family and to enjoy to a reasonable extent the respect of his associates. His life is necessarily one of unremitting toil and personal sacrifice frequently invested with the voluntary assumption of anxious responsibilities, but the influence of his cheerful and often gratuitous work is eminently uplifting. Finally, let it be reiterated over and over again as an established fact of every-day experience and observation, that the physician, who, in his desire to accumulate wealth permits himself to dabble at first in the gentle and serene eddy of speculation not infrequently finds himself unconsciously lured to the middle of the channel and perhaps swept along the resistless current until he reaches the very sea of speculation, where, after a final plunge, he may be engulfed forever in its seething maelstrom.

The preceding course of remarks is actuated purely by the continued unfortunate results of speculation in all its devious forms, constantly witnessed in all parts of the country, in the East as well as in the West. If there be one physician who may chance to read this article and who may resolve to profit by the unpleasant experiences of others, the object of this paper will have been attained. Its preparation has been very much like the opening of an old wound, the only adequate compensation for which exists in the hope that some may be spared the personal disappointment, the bitterness of spirit and the self-condemnation which must so surely attend and follow all speculative investments for physicians.

Antiperistaltic Movements of the Stomach.—Observations upon antiperistalsis of the stomach are rare, since in general it is difficult to see the movements of this organ behind the abdominal parietes. E. RAUTENBERG (Deutsch. Arch. f. klin. Med., Vol. 77, Nos. 3 and 4) has had occasion to observe this phenomenon in two cases of obstruction of the pylorus. In one the waves were only noticed when the stomach was distended with carbonic acid; they were never present at rest or after the ingestion of salt in strong solution. Similar motions probably also occur in the intestines but it is difficult to ascertain this without operation on account of the varying position of the gut.

ORIGINAL ARTICLES.

ON THE PRODUCTION OF SPECIFIC CYTOLYTIC SERA FOR THYROID AND PARATHYROID, WITH OBSERVATIONS ON THE PHYSIOLOGY AND PATHOLOGY OF THE PARATHYROID GLAND, ESPECIALLY IN ITS RELATION TO EXOPHTHALMIC GOITER.

BY W. G. MACCALLUM, M.D.,
OF BALTIMORE, M.D.;

ASSOCIATE PROFESSOR OF PATHOLOGY, JOHNS HOPKINS UNIVERSITY.

IN March, 1902, Gontscharukov, of Kiew, published a short paper in the *Centralblatt für allg. Pathologie* on the production of a specific antithyroid serum in which he states that after the injection at intervals of four weeks of an emulsion of dogs' thyroids into the subcutaneous tissues of a sheep, he was able to produce in other dogs by the injection of the serum of this sheep, which died during the experiment, certain tetanic symptoms which he thinks indicate the existence of a specific antithyroid toxin.

Knowing the literature on the physiological properties of the parathyroid glands as contrasted with those of the thyroid, it seemed desirable to control these results, and part of the following pages will be devoted to the experiments carried out with this in view.

Briefly stated, it has been shown¹ that the destruction of the thyroid alone produces disturbances of metabolism, which appear slowly, and gradually lead to cachectic conditions—the so-called myxedema. Destruction of the parathyroid alone, on the other hand produces the acute, rapidly fatal nervous phenomena which have so long been thought to be due to the extirpation of the thyroid. The most evident symptoms in this condition are the tetany and polypnea, which rapidly exhaust the animal. The confusion which has so long existed as to the relation of these symptoms to the thyroid depends on the fact that the parathyroids have only recently been discovered, and that, being small and inconspicuous organs, often embedded in the surface of the thyroid, they have usually been removed with the thyroid, hence the so-called early symptoms of thyroidectomy which produce their fatal effect before the true symptoms of thyroidectomy have had time to develop.

It was, therefore, proposed to attempt the production of a specific cytotoxin for the thyroid alone and similarly a specific cytotoxin for the parathyroid alone and to compare their effects. Now, since the parathyroids are so small, it is necessary to choose some animal which is slaughtered in great numbers for the experiment so that a quantity sufficient for immunization of another animal may be obtained. Besides this, it is important that the animal from which the parathyroid is obtained be small enough to be affected by a reasonable amount of serum which might be obtained from the immunized animal. Dogs were therefore chosen, since they vary much in

size and are slaughtered in great quantities in the dog pounds. For immunization the goose was chosen as an animal widely separate from the dog and highly resistant to infection. The thyroids of large quantities of dogs were obtained aseptically and with the same precautions the parathyroids were separated from them and emulsions of each organ were injected separately into the peritoneal cavities of geese provided for the purpose.

The process of immunization may be represented for convenience by the following table:

DATE	GOOSE 1. INJECTED WITH THYROIDS OF	GOOSE 2. INJECTED WITH THYROIDS OF	GOOSE 4. INJECTED WITH PARATHYROIDS OF
Dec. 13	4 dogs		
" 18	4 "		
" 24	4 "		
" 31	4 "		
Jan. 16	4 "		
Feb. 17	10 "	15 dogs	30 dogs
" 25	—	9 "	9 "
" 28	15 dogs	25 "	43 "
Mar. 8	—	35 "	46 "
" 18	22 dogs	22 "	30 "
" 31	—	39 "	39 "
Apr. 8	—	40 "	40 "

From this table it will be seen that in each instance a very large quantity of the organ in question has been injected into the peritoneum of the geese at relatively short intervals. They showed absolutely no ill effects of this treatment and are quite well to-day. Blood was taken at various times from veins in the wings, received aseptically, defibrinated and centrifugalized and the sterile serum used for injection into a series of dogs, as will be seen from the table following, and from the descriptions of the experiments. In some instances one injection only was made, in other cases two or three or even five injections were made at intervals, usually into the peritoneal cavity. Several of the dogs were killed after varying periods in order to study the histological changes in the thyroids, even though symptoms may not have developed. In one or two cases the animals died of peritonitis or of pneumonia.

In most of the others, which were kept until they died, a marked emaciation appeared with symptoms which might be considered as the expression of a general cachexia. In one instance only were there convulsive movements of the muscles.

Thus from the table it will be seen that dogs 1, 5, 7 and 9 showed definite emaciation, with symptoms of cachexia; conjunctivitis and furuncles on the skin with some anemia were the most noticeable things, and these to a less degree were present also in dogs 13 and 15. In all but No. 1, however, death seems to have been directly due to some intercurrent affection. The convulsive movements seen in dog 9 had not exactly the type seen usually after extirpation of the parathyroids, but were rather choreiform in character. It is

difficult to find a satisfactory explanation for them.

The condition of the thyroid histologically in all of these dogs excepting Nos. 9 and 2 was practically the normal. No definite departure from normal could be made out in the cells nor in the alveolar contents. In No. 2 there occurred

DOG NO.	DATE OF INJECTION.	DATE OF DEATH.	AMOUNT OF SERUM OF SERUM INJECTED.	RESULTS.	DURATION OF EX. IN DAYS.	HISTOLOGICAL CONDITION OF THYROID.
1	Jan. 6 Feb. 10	Feb. 17	5 injections, 1 to 5 c.c. per kilo.	Emaciation, cachexia, conjunctivitis, death.	41	Normal.
2	Jan. 6 Jan. 13	Jan. 20	2 injections, 1 to 4 c.c. per kilo.	Killed; no symptoms.	14	Festooned and hypertrophied.
5	Jan. 27	Feb. 26	1 injection, 5 c.c. per kilo.	Emaciation, cachexia, conjunctivitis, death of pneumonia.	30	Normal.
7	Feb. 3 Feb. 21	Feb. 22	2 injections, 5 c.c. per kilo.	Death of peritonitis; no symptoms; slight emaciation and cachexia.	19	Normal.
8	Feb. 3	Feb. 6	1 injection, 5 c.c. per kilo.	Dog killed; no symptoms.	3	Normal.
9	Feb. 10 Feb. 21	Feb. 25	2 injections, 5 c.c. per kilo.	Emaciation, cachexia; convulsive movements; pneumonia.	14	Degenerated and disintegrated.
10	Feb. 10	Feb. 18	1 injection, 5 c.c. per kilo.	Dog killed; no symptoms.	8	Normal.
11	Feb. 21	Feb. 28	1 injection, 5 c.c. per kilo.	Prolapse of rectum.	7	Normal.
12	Feb. 27 Apr. 7	Still alive	2 injections, of 3 to 5 c.c. per kilo.	No symptoms.		
13	Feb. 27	April 5	1 injection, 5 c.c. per kilo.	Emaciation, cachexia (?)	6	Normal.
15	March 7 March 12 March 24	March 26	3 injections, 5 c.c. per kilo.	Emaciation, urinary changes, death from peritonitis.	20	Normal.
19	April 11	April 12	1 injection, 5 c.c. per kilo.	Killed for comparison of thyroid extirpated before injection with the remaining one.	1	Both thyroids normal.
20	April 23	April 25 and 29	1 injection, 10 c.c. per kilo.	Thyroids extirpated, one after two days, the other after six days.	2-6	Both thyroids normal.

the curious condition of enlargement of the cells which become elevated into folds and papillary projections, such as were described by Dr. Halsted in the regenerative hypertrophy of the thyroid after partial extirpation. Since this condition occurred but once in the series and since

it has been found several times in the thyroids of the dogs killed at the pound, it seems probable that this is merely an accidental occurrence here. In the thyroid of dog 9 marked disintegration of the epithelium with loss of colloid was actually found.

Dogs 2, 8, 10, 19 and 20 were killed or had the thyroid extirpated after the lapse of periods of one, two, three, six, eight and fourteen days from the time of injection of the serum. In none of these were there any symptoms whatever, and in every one the thyroid was found to be histologically quite normal.

From these latter experiments it seems quite evident that whatever the properties of the serum of the immunized animal it does not effect any injury to the thyroid cells *in situ* which is visible to the eye in the microscopical preparation. Nor in those dogs which were allowed to live as long as they would was any definite or constant lesion found in the thyroid tissue which could be ascribed to the serum unless it be the disintegration found in the thyroid of dog 9.

Nevertheless, with the exception of dog 12, which is still alive and well after repeated injections, several of these dogs became emaciated and subject to intercurrent affections. By way of control two dogs were injected with similar quantities of normal goose serum. Of these, one became emaciated and died without evident lesions after twenty-two days; the other showed no symptoms and is still alive. It seems possible that the emaciation may be due to the hemolytic effect of the serum, but if the test-tube tests of the hemolytic power of the specific serum can be applied to the behavior in the dog's body, a calculation will show that only a very few c.c. of blood will be destroyed by the amount injected.

It is possible, of course, that the emaciation and cachexia may be due to a specific action of the serum injected, perhaps by its combination with the specific secretion of the thyroid without any actual destruction of the cells, but merely the neutralization or elimination of the secretion. Certainly, as shown by the series in which the dogs were killed, the serum does not produce a histological lesion so severe that it could not be entirely recovered from by the hyperplasia of

adjacent cells long before any symptoms could arise from thyroid insufficiency. Indeed, the extreme cachexia and emaciation of these dogs led to their death before the first symptom should appear in a dog which had been deprived of his thyroid gland by operation without injuring the parathyroid.

Injections of the serum of goose 4 immunized from the parathyroids of dogs were made in a smaller series as in table in first column.

A priori more might be expected from the destructive action of an antiparathyroid serum than from the antithyroid, because the symptoms and results of a destruction of the parathyroid appear so much more quickly and are so much more intense than those which result from thyroidectomy. The foregoing table, however, does not seem to show that any definite results have been obtained by the injection of this serum. One dog is still alive and shows absolutely no effect, the other two died after a number of days, in which they became much emaciated. In No. 16 there were convulsive twitchings of the muscles, but no dyspnea. It is possible that these twitchings were in this case the expression of a parathyroid insufficiency and that the serum had merely neutralized the normal secretion of the parathyroid sufficiently to allow of this development. In both of these cases, however, the parathyroids were histologically normal.

If any conclusions, then, can be drawn from these series of experiments they would be that the attempt to produce a cytotoxin capable of destroying the cells of the glands *in situ* has not been successful but that we may possibly believe that a material has been produced in the blood of the goose which will combine with the normal secretion of the dog's thyroid or parathyroid and neutralize it, thus allowing the symptoms which ordinarily follow extirpation of these glands to occasionally appear in a mild degree. It can hardly be thought, however, that the cachexia and emaciation which appear in almost all of these dogs and even in those injected with normal goose serum is dependent entirely upon the specific nature of the serum.

These experiments throw considerable doubt, therefore, upon the results obtained by Gontscharukov and especially upon his interpretation of them, for in any case one should not expect tetanic contractions as an effect of the destruction of the thyroid by a specific serum.

In the course of these experiments the interest of the writer became more strongly attracted to the problem of the nature of the parathyroid glands and their function in the body and rôle in disease, and since the production of a specific cytotoxin was so unsatisfactory, an attempt was made to further the knowledge of these glands by experimental and operative methods.

The history of the experimental investigations into the nature and functions of the thyroid is a long and familiar one, but that concerning the parathyroid is limited to the years since their discovery by Sandström² in 1880 and their rediscovery

DOG NO.	DATE OF INJECTION.	DATE OF DEATH.	AMOUNT OF SERUM INJECTED.	RESULTS.	DURATION OF EX. IN DAYS.	HISTOLOGICAL CONDITION OF PARATHYROID.
3	Jan. 6 Feb. 10 April 7	Still alive	1, 2 and 5 c.c. per kilo.	No symptoms, dog still alive.	125	
16	March 11 March 24	March 26	2 injections, 8 c.c. per kilo.	Emaciation, slight twitch- ings; con- junctivitis, death of pneumonia.	15	Normal.
17	March 28	April 2	1 injection, 8 c.c. per kilo.	Emaciation, conjunctivi- tis.	5	Normal.

ery by Gley³ in 1892. Since that time a number of French and Italian workers have added greatly to the knowledge of these bodies, and several recent papers have reviewed the whole subject with full literature references. Especially noteworthy among these are the papers of Welch⁴ and Benjamins⁵ and Jeandelize.⁶

For years it had been noted that after thyroidectomy in certain animals there occurred symptoms of the most acute and intense kind, which led very rapidly to the death of the animal, while in other animals the same operation was attended by no serious consequence in adults or led in young animals after a long time to nutritive disturbances, changes in the skin and interference with growth—in a word, the symptoms known as myxedema which are analogous if not entirely identical with those of cretinism. There was much difficulty in the explanation of this difference in different animals, but it was observed that the so-called acute symptoms of thyroidectomy came on in carnivorous or omnivorous animals, while in those animals whose food was largely of a carbohydrate nature—the herbivora and certain rodents—such symptoms were not found, and it was thought that the excess of nitrogen in the food of the carnivora was the cause of the symptoms of acute poisoning. Restriction of these animals to a carbohydrate diet did indeed seem to moderate the violence of the symptoms if it did not entirely preclude them⁷, but the difficulty was practically cleared up by Gley,⁸ who showed that in rabbits, which were thought to be immune from such acute symptoms, the same clinical picture could be produced if, instead of the ordinary extirpation of the thyroid, one also extirpated the parathyroids, which lie so far away from the thyroid as to be always left behind in the usual operation. The parathyroids were thus shown to be organs of great importance. Gley found that they became enlarged if they were left and the thyroid excised and he, therefore, thought that they should be considered as portions of the thyroid which had remained in the embryonic state and which, on the extirpation of the thyroid, underwent such a hypertrophy as to compensate for the lost thyroid. This view, however, was soon disproven by the researches of other writers, among whom Kohn⁹ may be mentioned. Gley found that the separate extirpation of thyroids and parathyroids in adult rabbits were alike unproductive of acute symptoms, but when both were excised—even though at widely separate operations—the tetany resulted very soon after the last operation. This seemed to support his idea that the parathyroids were merely embryonic structures ready to supply the place of the thyroids. It was soon discovered, however, that there are four parathyroids in the rabbit and that in extirpating the two distant glands and leaving apparently only the thyroid Gley was really leaving also the two parathyroids, which are intimately associated with the thyroid. After this discovery it was found that the complete extirpation of the parathyroids alone produces

acute tetanic phenomena, while the extirpation of the thyroid alone still produces only the chronic cachexia.

Various detailed studies of the results of complete and partial parathyroidectomy have since been made and the names of Moussu,¹⁰ Vassale and Generali,¹¹ Lusena¹² and others should be especially mentioned in this connection. Much confusion has arisen from the fact that in much of the work the thyroid has been extirpated as well as the parathyroid and this has stimulated inquiry into the relation of these glands to one another, a question which is still far from definitely settled. It was stated by Gley that the parathyroids become enlarged after extirpation of the thyroid and this has been confirmed by several authors, but Moussu has pointed out that this is no doubt due to the extirpation of two of the parathyroids with the thyroid, so that the hypertrophy is to compensate for them and not for the thyroid. There is no histological proof that parathyroid tissue can ever become converted into thyroid tissue, and there is now a general agreement of opinion that the glands are organs of very different nature. Moussu, however, holds that there is a functional relationship between them and this idea is supported by the discovery by Gley of iodine in their substance by the statement that thyroidectomy lessens the violence of the tetany which follows parathyroidectomy and that the thyroid undergoes some alterations after parathyroidectomy.

The object of this investigation was mainly to determine if possible the rôle of the parathyroid glands under normal conditions. In extirpating these organs from dogs and observing under various conditions the results, a beginning has been made and a number of the observations mentioned above confirmed, but much work, largely of a chemical nature, must be done before we can be said to possess any very clear light on the subject. Nevertheless, since the literature on the subject is still small, and nothing seems to have been published in this country, it has seemed permissible to publish here these results in the hope that they may at least attract attention to this organ, which is without doubt of considerable importance in the animal economy.

Dogs were used in these experiments and the operations carried out under aseptic precautions. Wound healing was usually good. The nature of the experiments and the results may be briefly set down in the table on next page.

The condition into which these parathyroidectomized animals fall after a few days is about as follows: Beginning with symptoms of unrest and anxiety with slight twitchings of the muscles here and there and fibrillary tremors of the tongue, the animal rapidly passes into a state in which the most violent tetanic spasms of all the muscles occur. The dog is able to walk at first but rather stiffly, the hind legs being especially awkward and beyond his control, frequently with a sudden twitch they slip from under him and bring him down upon the floor. Sometimes in

DOG.	DATE OF OPERATION.	DATE OF DEATH.	OPERATION.	SYMPTOMS.	ANATOMICAL RESULTS.
104	March 14	March 18	Parathyroidectomy.	Tetany, dyspnea, epileptiform convulsions, sialorrhea.	Thyroid normal.
106	March 12	April 5	Partial parathyroidectomy.	Emaciation, diarrhea.	Thyroid normal, slight folding of epithelium.
107	March 24	May 22	Partial parathyroidectomy March 24. Excision of left thyroid and remaining parathyroid May 6.	No symptoms.	Portion of parathyroid left embedded in thyroid.
109	March 31	April 3	Parathyroidectomy, sciatic cut during tetany. Spinal cord cut during tetany. Dog bled and transfused into another dog.	Violent tetany, polypnea 200 c.c. No abatement of spasms. Exophthalmus.	Thyroid normal.
110	April 2	April 10	Thyroparathyroidectomy.	Slight twitching, emaciation, cachexia.	
111	April 2	April 13	Parathyroidectomy; second operation for same, sciatic cut, only two parathyroids removed in all.	No symptoms.	
113	April 10	April 20	Parathyroidectomy, sciatic and crural cut, parathyroid injection, April 15.	Tetany April 15. No twitching in paralyzed leg; tetany continues.	Anterior horn cells show chromatolysis.
114	April 15		Thyroidectomy, two parathyroids left.	No symptoms.	Urinary changes.
115	April 18	April 21	Parathyroidectomy, nerves to leg cut.	Tetany, exophthalmus, Cheyne-Stokes resp.; tachypnea, no twitchings in paralyzed leg.	Anterior horn cells and pyr. cells of cortex show chromatolysis and swelling of nucleus.
116	April 21	April 29	Parathyroidectomy.	Tetany, tachypnea, etc.	Urinary changes.
117	April 25		Parathyroidectomy. Injection of parathyroid.	Twitching seems to have been stopped.	Still alive.
118	April 28		Partial parathyroidectomy.	No symptoms.	
119	April 28		Partial parathyroidectomy. Infusion of blood from No. 121.	No symptoms.	
120	April 23	May 9	Injection of goose serum. Thyroparathyroidectomy. Transfusion of normal blood. Bleeding and infusion of salt solution several times.	Tetany disappears after transfusion; cachexia.	
121	April 30	May 3	Parathyroidectomy. Transfusion of blood to No. 119.	Tetany, etc.	
123	May 5		Parathyroidectomy. Partial thyroidectomy.	No symptoms.	
124	May 6	May 9	Parathyroidectomy. Section of spinal cord. Transfusion of blood.	Tetany in non-paralyzed part.	
125	May 6		Parathyroidectomy.		
126	May 7	May 9	Parathyroidectomy.	Tetany.	
127	May 9		Parathyroidectomy. Infusion with blood of No. 124.	No symptoms; death during night.	

walking about or climbing stairs the dog suddenly falls to the floor in an epileptiform convulsion—the legs are stretched out rigid, the head stretched forward, all the muscles of the neck being thrown into a tetanic contraction—breathing stops for a few moments and is then gradually resumed, the legs finally relax and the dog recovers and walks about again. Usually, however, the onset of the tetany is more gradual and continuously progressive and from the condition in which spastic walking is possible the dog goes

on to that stage in which, with all the muscles rigid and twitching violently, he is unable to stand at all. The most violent trismus with snapping of the jaws appears and the tongue is often bitten; saliva pours from the mouth; all the facial muscles twitch, and the eyes project from the fact that the upper lid is much retracted. Respiration is profoundly affected and the dogs appear to stretch out their heads, panting for breath. The rate of respiration is greatly increased, even up to 200 or 250 per minute. With

this there is no sign of cyanosis and the blood is readily arterialized by shaking up in the air. The tachypnea cannot, therefore, be readily explained as due to lack of proper oxygenation or air hunger. Sometimes it is very irregular and varies in the fashion described as Cheyne-Stokes respiration.

Exhaustion soon supervenes and the convulsions become less violent and the respiration less rapid, so that if the animal does not die in the height of the attack he lies relatively quiet for a time before death. During this series of phenomena the heart beat is not notably increased in rate—the initial shock is somewhat sharp and the curve high, but there are no marked changes. The temperature is said to rise markedly with the tetany and to fall again on its disappearance. Sensation seems to be very much dulled if not quite lost during the tetany.

Several problems in connection with this phenomenon, therefore, present themselves: (1) Are we dealing with a condition in which there is lack of some necessary secretion of the parathyroid? (2) Is there, on the other hand, a poison produced somewhere in the body which is circulating in the blood and producing these phenomena, but which, in the normal animal, would be neutralized either by the parathyroid cells themselves or by their secretion? (3) Is this poison produced by the metabolism of any particular group of cells, or, in other words, are there specific relations between the parathyroid and any other particular organ, for example, is this poison directly absorbed in the intestine or is it the waste product in the metabolism of the muscles or the noxious excretion from the metabolic processes in the nerve cells themselves?

The first of these questions seems not especially difficult to approach. If the parathyroid be conceived of as producing a secretion necessary to the functions of the body the effects of the lack of this secretion, which must be carried about in the blood since there is no other outlet, should not be ameliorated by the removal of the blood or its dilution. In order to determine this point the blood of a normal dog was transfused directly into the veins of dog 120, which, after removal of both thyroids and parathyroids, had reached the condition of violent tetany. The result was the complete disappearance of all tetanic symptoms after about four hours, and next day the dog seemed quite well. It might be objected that in so doing we injected with the blood of this normal animal the circulatory secretion of its parathyroid. The next day, therefore, when the effect of this transfusion of blood had apparently passed off and the dog was again plunged into violent tetanic spasms, instead of transfusing normal blood, the animal itself was bled and a somewhat larger quantity of normal salt solution (150 c.c.) allowed to run into the veins. The same immediate, or almost immediate, amelioration of the symptoms with complete disappearance of the tetany followed. Next day the tetany had reappeared and the bleeding and infusion

was again carried out with success. So also upon the next day, although the dog had by this time become very weak and the tetany very slight—50 c.c., therefore, of blood were removed and 200 c.c. of salt solution infused—the result was the immediate improvement of the dog, so that he could run about. After this there was, strangely enough, no recurrence of the tetany and the animal passed gradually into a cachexia, due, perhaps, to the thyroidectomy, and died after several days. Similar results have been obtained by Lusena and others. The idea that the parathyroid is active chiefly in neutralizing some toxin seems, therefore, more plausible, although it is perhaps not absolutely proven by this single experiment.

No especial light seems to be shed upon this point by the observations of various authors (Lusena, Vassale, Generali, Moussu and others) that the tetany may be stopped or prevented by the injection of emulsions of the parathyroid gland. This corresponds obviously with the transplantation of the gland and is analogous with similar experiments made with the thyroid. In two of our dogs, 115 and 117, it was possible by the intraperitoneal injection of an emulsion of the crushed parathyroids of the ox, filtered through a cotton cloth so as to exclude large fragments, to cut short tetanic attacks already begun and to postpone by many days the fatal result, and Lusena has been able to keep dogs alive for a long time by such a process. This shows, at any rate, that it is not necessary that the gland should be intact and in its normal connection with the blood vessels in order to carry out the function, but that the extract is quite as efficient as long as it lasts.

Verstraeten and Vanderlinden have shown that the tetany is less violent and appears later when the dogs are kept on a milk diet than when given a diet of pure meat, which perhaps adds support to the idea that a poison is produced in proteid metabolism. In order to control this, one parathyroidectomized dog (No. 125) was fed exclusively on bread and water after the operation and in this case no tetany developed within the twenty days that the dog lived. One such case, however, is very inconclusive, since one is never absolutely sure of the completeness of the operation. Again, it has been observed (Vassale and Generali, Lusena) that the tetany resulting from the extirpation of the parathyroids alone is far more intense than in those cases in which the thyroids were also extirpated, and Lusena has even shown that the tetany once begun can be made to disappear by removing the thyroids. Vassale and Generali explain the milder results of thyro-parathyroidectomy on the ground that removal of the thyroid decreases the proteid metabolism and hence decreases the amount of poison thrown into the circulation and ordinarily neutralized by the parathyroid. Lusena objects to this explanation, however, on the ground that the ameliorating effects of thyroidectomy come on at once and that they do not follow a partial thyroidectomy. His

observation, that the tetany once started can be cut short by thyroidectomy has not, however, as far as we can ascertain, been confirmed, and his explanation of the phenomena seems, therefore, not very strongly supported. This explanation is based on the idea that the functional relationship between the thyroid and parathyroid is very close, and that the symptoms of parathyroidectomy are chiefly due to the removal of the influence of the parathyroids from the thyroid.

In two of our dogs, 110 and 120, we have not been able to confirm these results, for in these the tetanic convulsions appeared in both instances two days after the operation. As yet we have not had an opportunity of repeating Lusena's experiment in removing the thyroids during the tetany of parathyroidectomy.

It may be said, therefore, that while it seems improbable that the parathyroids secrete a necessary material which is circulated in the blood, the lack of which produces the disturbances described, it does seem probable that they produce a material which neutralizes poisons produced elsewhere, poisons which if not so neutralized may be mechanically washed out with the relief of the symptoms. Of course, it may be claimed that the parathyroid secretion is necessary to the metabolism of, say, the nerve cells, that without it the perverted or incomplete metabolism throws the nerve muscle apparatus into the tetanic state described, but since this must be due to the presence of stimulating materials, it forms only an example of the neutralization idea in which the metabolism of the nerve cell is particularly concerned.

In order to approach this point more closely it was determined to transfer the blood of an animal in tetany into the veins of another animal. Several experiments with this end in view were therefore made. In one the blood, about 50 c.c., was injected into the peritoneum of a small dog, but without any effect. In another case the test dog was first partially parathyroidectomized and then under ether the aorta of a parathyroidectomized dog in violent tetany was connected by canulas and a rubber tube with the jugular vein of the test dog and the full stream of blood from the aorta allowed to pour into the jugular vein until the tetanic dog was dead and blood had ceased to flow or flowed only very slowly. The jugular vein was then ligated and the wound closed and the dog allowed to recover from the ether. Although it was carefully watched, no signs of tetany developed. It seemed probable that in this dog enough of the parathyroid had been left to carry out the function of neutralization of the supposed poison. In the next case, therefore (dog 127), complete parathyroidectomy was performed, and the dog, which weighed about 3,000 grams, bled 100 c.c., and then only was the canula from the aorta of dog 124, at that time in violent tetanic convulsions, tied into the jugular vein and the aortic blood allowed to flow into that vein until dog 124 was dead. Even so, absolutely no signs of tetany developed during

the next forty-eight hours and the dog died some days later during the night without having at any time exhibited any tetanic symptoms. It seems possible, however, that even in this case sufficient of the secretion of the parathyroids was present in the remaining blood and in the tissue juices of this freshly parathyroidectomized dog to neutralize whatever poison was introduced with the blood of the tetanic dog, so that the most that might be expected would be the somewhat earlier development of the tetanic symptoms due to the parathyroidectomy of this animal itself. Baldi¹³ has in the same way injected the blood of thyroidectomized animals in the tetanic state without any result. The experiment, therefore, seems entirely inconclusive as to the question of the presence of a poisonous material in the circulating blood of a tetanic animal.

It seemed then of interest to localize a little more definitely the point of attack of this hypothetical poison, to determine whether the twitching of the muscles were due to the effect of some material on the muscles themselves or to an affection of the nervous system and if the latter, of which part of the nervous system.

It was noticed that the administration of ether abruptly stopped the tetany and the tachypnea, the respiration returning to normal, but being very apt to cease abruptly, causing the death of the animal. This is perhaps to be explained by the idea that the respiratory centers are fatigued by the extraordinary dyspnea and any depression of reflexes allows them to cease their function.

More accurate localization seemed, however, to be obtained from the following experiments:

In one dog (No. 111) the sciatic nerve was cut at the time the parathyroidectomy was performed, in others (Nos. 113, 115) the sciatic anterior crural and obturator were cut. In these dogs, especially in 115, in which after the intra-abdominal section of the anterior crural and obturator and the very high section of the sciatic, paralysis of the leg was complete, it could be easily observed when the convulsions appeared that while the muscles of the other leg were in violent spasmodic contractions the paralyzed muscles lay perfectly quiet. There is a thrill which can be felt in the tetanic limb, even when more violent contractions are not actually present for the moment, which is quite absent in the paralyzed leg. The effect, therefore, is not on the muscles themselves, but rather to be localized in the central nervous system. In another dog (124) the spinal cord was cut through at about the sixth dorsal vertebra and parathyroidectomy performed. The dog was, of course, completely paralyzed in the posterior part of the body, there was incontinence of urine, continual dribbling from a distended bladder, etc. and flaccidity of the extremities. Reflexes and muscular power were still present there however. Scratching in the inguinal region produced movements of the tail and pinching of the deep muscles produced movements of the legs. Three days after the

operation for parathyroidectomy the dog was found in tetany. No dyspnea nor tachypnea, but the forelegs were held perfectly rigid with occasional well-marked clonic spasms. All the muscles of the anterior part of the body were in violent twitching motion, trismus and fibrillary twichings of the tongue were observed. The posterior portion of the body was far less violently convulsed than the anterior, indeed the twichings seemed to stop sharply at the middle of the body—the tone of the muscles in the hind legs was lost to a great extent and the limbs had none of the rigidity seen in the forelegs. There were, however, slight visible tremors, which showed through the skin by the slight spasmodic elevations and movements of the hair.

It is, of course, impossible to draw definite conclusions from one such experiment, but it seems at least to indicate that the stimulation is not chiefly a stimulation of the anterior horn cells of the cord, but that the upper motor neurons are also, and perhaps chiefly, affected, for were the lower motor neurons independently affected one sees no reason why violent spasms of the hind legs should not occur in this case, in which the connections with the cord are still intact.

The histological examination of the spinal cord and cerebral cortex in these cases has failed to show us any such degeneration of tracts in the cord as has been described by Vassale and Donaggio,¹⁴ but there are evidences of swelling of the nucleus of the anterior horn cells and of the cells of the cortex with chromatolysis, as shown by the method of Nissl. These correspond in every way with the acute degenerative changes described in so many toxic conditions. The further study of these changes will be reported at a later date.

In several of these dogs in which parathyroidectomy had been performed with death from the usual symptoms, as well as in others in which thyroparathyroidectomy and thyroidectomy alone were carried out, attempts were made to study the changes in metabolism as evidenced by the output of nitrogen in the urine. The analysis of the urine was made by Dr. Slemons of the Johns Hopkins Hospital, and will probably be published later by him in detail with the charts of the observations, but, roughly speaking, it may be stated that in the cases of parathyroidectomy practically no changes in the nitrogenous content of the urine could be made out, while in the cases of thyroparathyroidectomy and in the case of simple thyroidectomy in which two of the parathyroids were left *in situ*, marked alterations occurred, consisting in a diminution in the amount of nitrogen in the urine, with alteration of the relation normally existing between the compounds that go to make up this.

A summary of the results of these cases, rough as the estimations were, still serves to show that there are distinct differences between the effects of parathyroidectomy and those of thyroidectomy or of thyroparathyroidectomy, as follows:

After the parathyroidectomy the ammonia is

slightly increased just after the operation with speedy return to normal. Other nitrogenous elements show no change.

After thyroidectomy the ammonia is primarily diminished, then markedly increased, urea is decreased, amido acid nitrogen increased and the nitrogenous compounds precipitated by phosphotungstic acid increased.

Together with the results of other observations, this tends to show that, while the thyroid gland has a definite and marked influence upon the course of metabolism the function of the parathyroid is directed to a different purpose and is not specially concerned with metabolism. It is interesting to note that daily observations of the urine of dog 15 in the preceding series, in which a specific antithyroid serum was several times injected, there was after each injection a temporary alteration in the nitrogenous constituents of the urine which corresponded in every way with that observed after thyroidectomy.

In the course of these experiments the idea naturally suggested itself that there might be some disease analogous in its symptoms to those produced by the extirpation of these glands and the symptom complex of exophthalmic goiter with all its difficulties of explanation presented itself at once as at least somewhat similar. Perusal of the literature showed that this idea had been put forward by Gley¹⁵ and acted upon by Moussu,¹⁶ who treated a case of exophthalmic goiter with the parathyroids of the ox. Moussu reports a marked improvement in his case, which was, however, unfortunately carried off by tuberculosis during the treatment. Since that time there has apparently been no attempt made to treat this disease with the parathyroid extract.

When we compare the symptoms of exophthalmic goiter with those following extirpation of the parathyroids we do find certain analogies, but they are after all not so striking as they might be at first glance.

Tachycardia, so constant in the one condition, is not found in the other; the tremor in the one is represented by the violent convulsive movements of the other. Exophthalmos is sometimes approached if not actually well developed in dogs. Partial parathyroidectomy in dogs produces no symptoms unless under the stress of some physical strain, such as lactation, when the symptoms (Vassale) are those of complete parathyroidectomy. Still we must remember, if we think of exophthalmic goiter as due to a parathyroid insufficiency, that it cannot be entirely analogous in any way to the effect of extirpation of the parathyroids in the dog, for there, instead of a gradually progressing disease, we have the acute and fatal results of a complete extirpation of the glands. There remains then a general resemblance between the symptoms of the two conditions, with differences perhaps explicable from the differences in the duration and completeness of the parathyroid insufficiency. More light should be forthcoming from an anatomical and experimental study of exophthalmic goiter, and,

indeed, Benjamins has recently examined the parathyroids in three cases of the disease and has declared them to be practically normal. In several cases of exophthalmic goiter which have occurred in this hospital and in which portions—usually one whole lobe—of the thyroid have been removed for operation, I have been able by the kind permission of Dr. Halsted to search for the parathyroids. In this I have been assisted by Mr. Whipple, who will later publish a description of the histological changes in these cases. It will suffice to say here briefly that in the tissues preserved from eight cases it has been possible to find parathyroid tissue in four. Since, however, the tissue in all of these cases had been handled a good deal and many pieces removed for examination, it is quite possible that parathyroid tissue would have been found in all had the proper opportunity offered. In one other case which died without operation search at the autopsy failed to reveal any trace of parathyroid tissue. This was a case in which the symptoms were extraordinarily intense, and the patient actually died from the disease itself, a condition very different from that in the other cases, in which the symptoms were moderate. In all of these cases it was difficult to find the parathyroids, and they were distinctly smaller than normal in all. In two of the cases no very definite change other than the decrease in size could be made out, while in the other two very distinct degenerative changes in the parenchyma cells with overgrowth of connective tissue could be observed. It seems justifiable, therefore, to conclude that there is evidence in these cases of distinct diminution in the bulk and degeneration and disappearance of the cells of these glands. Whether this indicates that the symptoms are those of parathyroid insufficiency is, however, another matter. Against this idea is the fact that recovery, or at least great amelioration of the symptoms, is so frequent after the operative extirpation of the one lobe of the thyroid with which, as I have just shown, the parathyroids are probably always removed. If the disease were due to a parathyroid insufficiency it is hardly probable that the condition of the patient would be improved by removal of half of the bulk of the already insufficient parathyroids.

Nevertheless, in view of the anatomical changes in these glands and the favorable result obtained by Moussu, and in spite of the fact that favorable results have been reported in the treatment of this disease from the use of almost every possible remedy, parathyroid feeding has been instituted in one case in this hospital. For the past month this woman, whose symptoms are the usual ones in a moderate degree of development, has received daily twelve of the raw parathyroids of the cow. The glands used are the larger external ones which lie embedded in the thymus and quite separate from the thyroid—twelve of such glands therefore represent approximately the parathyroid tissue of three cows. So far absolutely no effect has been noticed—the pulse rate

continues at about 120, tremors are marked and the test sheet of writing which she copies at intervals show about the same shakiness. Still, if the parathyroid glands were less difficult to obtain, it seems desirable that further tests of this therapeutic measure should be made, and with this in view an extract of the gland is now being made. Similarly it seemed possible from the observations of the epileptiform attacks seen in some of the dogs that certain forms of epilepsy might be due to a similar cause. No opportunity has as yet offered itself, however, for the study of the glands in this disease, nor has it been possible to feed these patients with the parathyroid glands.

Probably other convulsive diseases might be suggested which could possibly be brought into relation with the alterations of this gland. At any rate, the aim of this incomplete paper will be largely attained if it succeeds in directing some attention to the study of so important and little known an organ.

REFERENCES.

1. For a discussion of this subject with full analysis of literature, etc., see Jeandelize These de Nancy, 1902. *Insuffisance Thyroïdienne et Parathyroïdienne*.
2. Upsala, *Läkare förenings Förhandlingar*, 1880.
3. *Archives de Physiol.*, 1892.
4. *Journal of Anat. and Physiol.*, Vol. 32, 1898.
5. *Ziegler's Beiträge*, Bd. 31, 1902.
6. *Loc. cit.*
7. Verstraeten u. Vanderlinden, *Memoires de l'acad. de med. de Belgique*, 1894.
8. *Loc. cit.*
9. *Archiv f. Mikr. Anat.*, Bd. 44, 46, 1884 and 1896.
10. Moussu. *C. R. Soc. de Biol.*, 1892, 1893, 1897, 1898.
11. Vassale and Generali. *Riforma Medica*, 1897. I, II, III; *Arch Ital di Biol.*, 1900, XXXIII.
12. Lusena. *Riforma Medica*, 1898. IV, 1899. II.
13. *Arch. Ital. de Biol.*, XXXI, p. 281.
14. *Arch. Ital. de Biol.*, 1897. XXVII, p. 1-4.
15. *Brit. Med. Journal*, 1901, Sept. 21.
16. *C. R. Soc. de Biol.*, 25 Mars., 1899.
17. *Arch. Ital. di Biol.*, XXX.

SKIN LESIONS ASSOCIATED WITH RAPID GROWTH OF LONG BONES, LINEÆ ALBICANTES. (LES VERGETURES DE CROISSANCE. JULES COMBY.)

BY W. P. NORTHRUP, M.D.,
OF NEW YORK.

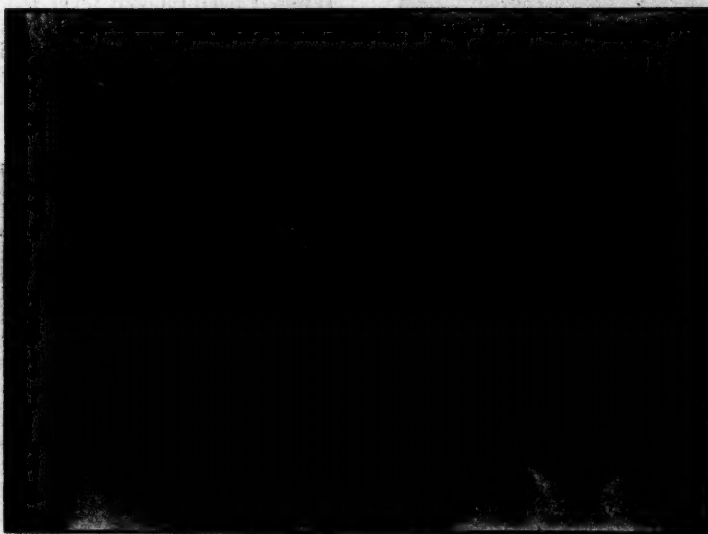
FOR some years I have had in mind the scars—across-the-knee here shown in photograph. I could never explain the scars of my early patient; I had never seen any like them, and in several years of subsequent hospital observation I have not added a similar case to my experience. They come under the names of lineæ albicantes, lineæ atrophicæ, etc., and are exactly similar to those on the parturient woman's abdomen. I incline to the belief that this particular lesion, or this particular locality of lesion, is not common.

Last summer I picked up in Paris a new edition of Jules Comby's book on children's diseases. In looking it through I came upon a chapter—*Maladies of Growth*. Here I found described exactly the case under consideration. The lesion figured in the photographs pertains to an adult male, in the neighborhood of—perhaps, rather more than—six feet. His case is as follows:

He belongs to a tall family, but the patient is two inches taller than any of the others—father or brothers. At the age of seventeen years the patient was rather below the average size, wore size 12 collars and gloves of ladies' size. At the age of seventeen he contracted typhoid fever, was very sick, in bed six weeks, his life, he was told, was despaired of for five days. When he first stood up he was said to have grown in height. For two years he frequently heard the exclamation, "How he grows." Those who had not seen him for two weeks declared he had grown perceptibly. A chum of his of nearly equal size, before his illness, could within three years stand under his outstretched arm. He is sure of this, because they were both in the same circle of friends and the experiment was often

apyretic, which condemn a child whose growth is not yet terminated, during a long time, to horizontal rest, has for habitual result very remarkable growth in height. A child which presents each year an average growth of 5 cm. often passes this limit in some weeks, under the influence of a typhoid fever, for example: An elongation of the long bones is so rapid in such cases that the development of the skin is not able to keep pace, and there result frayings (*éraillures*), wales, welts (*vergetures*), the habitual location of which corresponds to the femero-tibial regions. The accession of growth is explained by the horizontal position, which results in annulling the reciprocal pressure of the bones and by the irritative congestion of the bony marrow which typhoid fever generally produces."*

Fig. 1.



Les Eraillures after Typhoid Fever in a Rapidly Growing Youth.

tried. The fact of unusual and exaggerated growth seems established. He remembers his illness thoroughly, that he was greatly emaciated, that his knees were never swollen, that his feet were swollen when he began walking out of doors, but not his knees.

As to the scars across his knees, he feels sure they were not there during his convalescence, and he cannot recall when they first appeared. When first seen, they were pinkish, like wales or welts made by a switch. Does not recall whether they were raised any more than at present. There are no other similar scars on his limbs or body.

The elements of this case are summed up in Jules Comby's book, and I have never seen so full an account elsewhere.*

"All acute and chronic illnesses, febrile or

Under Typhoid Fever, he speaks of a girl, aged thirteen years, who suffered several relapses of typhoid fever, who was in bed four months, recovered with rapid growth and pronounced welts (*belles vergetures*).†

"It is not rare to see a child present as result of typhoid fever a rapid and excessive growth. Such growth shows itself sometimes, besides elongation of the skeleton, in cutaneous welts (*vergetures*), having for their location the knees, and may occupy also other parts of the body."

In speaking with friends, I have been able to find one case similar to that here shown. I am indebted to Dr. Charles Norris for the following:

A girl thirteen years old, in the summer of 1878 suffered a prolonged attack of typhoid. The doctor's account of the *vergetures* is as follows: "The scars have irregularly edged bor-

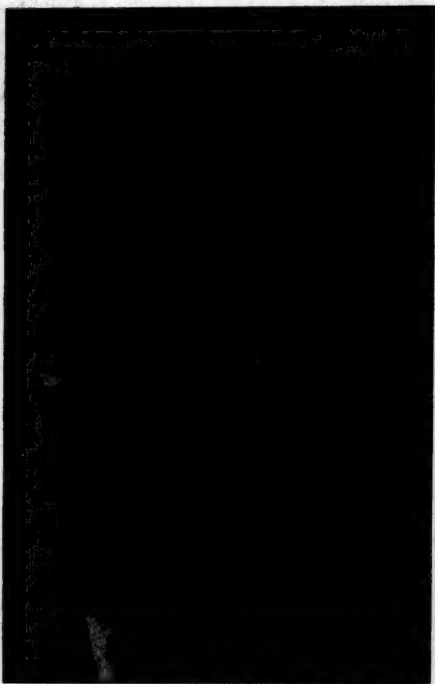
* *Maladies de Croissance. Traité des Maladies de L'Enfance*, fourth edition. Paris, 1902.

* Loc. cit., p. 267.

† Loc. cit., p. 113.

ders. The epithelium which covers them is glistering or glazed, or porcelain-like in appearance. They vary in length one to three inches; in breadth one-quarter inch or more, in places. Over the dorsal surface of both knees I should

Fig. 2.



Les Eraillures after Typhoid Fever in a Rapidly Growing Youth.

say there were at least 15 to 20 scars, which are slightly curved, arranged in more or less parallel rows and run at right angles to the length of the bones. They are found only over or just above the knees. A few smaller and less conspicuous scars are found over the back of the upper arm just above the bend of the elbow, more marked over the right than the left arm. They also are parallel, one just above the other, three or four in number. The lesions appeared as large, intensely reddish or bluish welts raised above the surface. Apparently they remained stationary for a number of years; the evolution into the present whitish flat scar having been a very gradual one. The scars were a source of annoyance on account of their reddish color, which shone through thin sleeves. Evidently they were reddish five or ten years after recovery from the disease. Neither the patient nor her friends are quite sure when—that is, how long after or during convalescence, they made their appearance. But it seems more than likely that they were noticed some time during the convalescence, which was a protracted one. The location of the

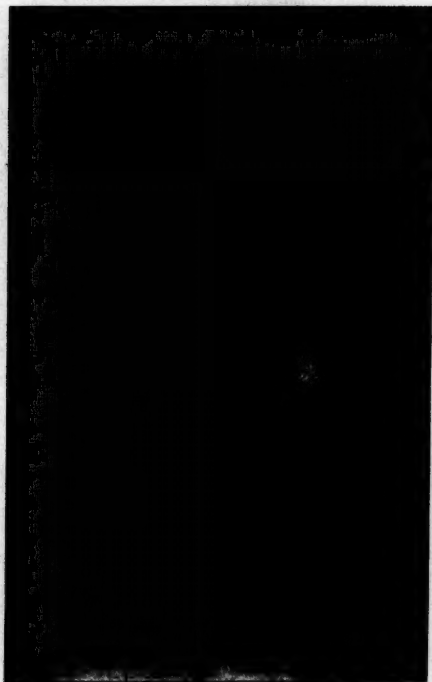
scars, exclusively over the epiphysis of the long bones, seems to confirm the explanation which M. Jules Comby offers."

Hare, in the "Medical Complications of Typhoid Fever," p. 249, says: "A somewhat unusual lesion of the skin resulting from typhoid fever, is the development of lineae albicantes. It is stated that they occur most frequently in children and young adults. Bucquoy notes that in boys these whitish lines have no special area of distribution, but in girls, the breasts and crests of the ileum are the places where they usually appear."

Barie has reported the case of a girl of seventeen years in whom these lines appeared over the knuckle-joints of each hand.

A somewhat similar condition, due to localized atrophy of the skin, is recorded by Bradshaw. In his case, a girl of thirteen years, who had suffered from typhoid fever followed by relapse, and again by a second relapse, finally developed during convalescence upon the inner surface of the lower one-third of the thigh, a number of

Fig. 3.



Les Eraillures after Typhoid Fever in a Rapidly Growing Youth.

horizontal markings, some of which practically surrounded the limb. They were about one-half inch in width, regular in contour, and almost exactly alike on both legs.

The skin lesions, in the case photographed (les vergetures), are located as the patient stands,

over the patella, and just above. They are symmetrical. When the knees are flexed at right angles the scars ride up with the skin and are distributed over the lower end of the shaft, epiphysis and patella, on the extensor and lateral surfaces, rather more marked on inner surfaces. There are none on other skin surfaces of the body. Patient does not remember when they first appeared. They were first pinkish, later porcelain-white and never painful. The scars are about a line in width, irregular zigzags running together, 20 to 50 on each knee. They are in every way similar in appearance to the lineæ albicantes of the parturient woman's abdomen.

The same causes which make frayings of the skin in the rapidly growing abdomen of the pregnant woman, may act in a similar way in the rapidly elongating long bones of the leg in the particular combination of youth, typhoid fever exaggerated growth of bone and enforced horizontal rest. Literally, it would seem that the skin cannot keep pace with the bones and frayings result.

CAFFEINE IN THE TREATMENT OF ALCOHOLIC TOXEMIA.*

BY ARTHUR J. HALL, M.D.,
OF WASHINGTON, D. C.

SINCE the introduction of caffeine every writer on the subject has referred to the good results following the ingestion of strong coffee or tea by the victim of acute alcoholic toxemia, and every writer on alcoholic toxemia has advised the use of tea or coffee in the treatment of these cases; consequently the first impression created by a proposition to use caffeine in treating alcoholism may be that it carries with it nothing new or novel; however, as no investigator, so far as I am aware, has recorded his experience in the use of caffeine as a safe therapeutic agent that can be relied upon to produce definite results in treating alcoholic toxemia, I take the liberty of bringing the matter to your attention.

One of the first, and perhaps the most important features in the treatment of acute alcoholic toxemia, or an acute exacerbation of chronic alcoholic toxemia, is the withdrawal of the supply of alcohol. In some retreats where the patients would seem to be at the mercy of the attendants, this withdrawal is accomplished with difficulty and delay, on account of the importunities of the patient, who seems to think that nothing will do him a particle of good unless he can secure one more dram, and another, and still another, and so on. In private practice the supply of alcoholics is frequently continued for days, hoping that the patient will finally consent to their withdrawal; but as a rule this practice only prolongs the sufferings and anxieties of all interested parties.

A review of part of the symptomatology and pathology of acute and chronic alcoholism and the clinical and experimental results obtained from

the use of caffeine, would seem to suggest caffeine, as a specific for alcoholic toxemia, as I have endeavored to show in the following table:

Symptoms and Pathology of Alcoholic Toxemia.

Therapeutic Effect and Physiological Action of Caffeine.

*Kidneys are irritated and an increased amount of urine is secreted. If the irritation is too intense the glomeruli are swollen and the secretion of urine is diminished or prevented.

*The blood is improperly aerated. Waste material is retained in body.

Sleeplessness and depression of spirits.

Reduces temperature, dissipates heat. *Extreme coldness (fatal case) temperature 91° F. *Continuous and prolonged discharge of body heat.

*The first pathological stage of intoxication is one of vascular relaxation with vasomotor paralysis. *Vasomotor paralysis always present.

*The arteries are sclerotic.

*Defective circulation in brain reacts sharply on cell nutrition.

*The heart is always deranged—hypertrophic or atrophic. Its muscle walls enfeebled. Nutrition and control diminished. Dilation. Heart failure.

*There are many unknown toxins which come from the spirits used and are formed by its actions on other substances.

*Chemical derangements of the processes of metabolism.

During convalescence an intense craving for more alcohol.

*Three grains of citrate of caffeine is a diuretic.

*Caffeine is recommended in all cases of venous congestion with intact kidneys.

*Three to five grains will prove calmant and restorative.

*Tends rapidly to reinstate normal temperature by retention. Fall of body temperature antagonized by caffeine. *Supports the vital powers and resists tendency to collapse.

*Is tonic to vasomotor nerves. *Refreshes and stimulates the nervous system.

*Is of great use in attacks of dyspnea caused by sclerosis of coronary arteries.

*Stimulates the cerebro and cerebro-spinal system.

*Is a powerful stimulant to the central nervous system.

*Braces the nerves which govern the caliber of vessels, and so sustains the circulation. Three grains is a diuretic in cardiac dropsy. *A much more active heart stimulant than is usually believed.

*Increases the loss of carbon by the organism; does not restrain the loss of nitrogen.

*Formula $C_8H_{10}N_4O_2$. Carries large amount of nitrogen. Base xanthin, found in most of the organs of the body. Xanthin thus furnished may assist in processes of metabolism.

*Caffeine seems to take the place of alcohol and to quench the desire for it.

From the above it is clear that the physiological antagonism of caffeine and alcohol has been recognized, and while at least one writer¹ has proposed

* Read at the Annual Meeting of the American Therapeutic Society at Washington, D. C., May 12, 1903.

and endeavored to popularize an effervescent solution of caffeine as a substitute for alcoholic drinks, still the one feature which has been overlooked, and which is of prime importance to the therapist, is the fact that caffeine administered in doses of one or two grains every one, two or three hours, will usually in twenty-four or forty-eight hours so effectually quench the thirst or craving for alcohol that most confirmed habitués will voluntarily abandon its use. This feature is well illustrated by the following cases:

Case I.—Mr. S., age twenty-five years, has been a moderate consumer of whisky for years. At short intervals he indulges to excess, the "spree" consuming from three to five days of his time. On a recent occasion, during a railroad trip, he indulged freely, and found himself on Sunday morning in a dry town, with an unquenchable thirst, and whisky to be had only on a physician's prescription. On applying to me I assured him that whisky was not necessary at all, and that a few capsules taken during the day would answer the purpose. He took 2 grains of caffeine every two hours for 4 doses. He afterward assured me that after the third dose the desire for alcohol disappeared and he made the most rapid and satisfactory recovery of which he could remember.

Case II.—Mrs. D., aged thirty years, was under observation eight years ago, at which time she was treated for an almost endless variety of nervous symptoms attending a premature atrophy of the uterus. She was absent from the city for a long while, during which time the symptoms were aggravated in spite of more or less constant treatment. She finally became addicted to the use of whisky and laudanum. When I saw her recently she was consuming one pint of whisky and from "15 to 30 cents worth of laudanum" daily. The pulse was 180 per minute; the temperature from $\frac{1}{2}^{\circ}$ to 1° F. above normal; she complained of uncomfortable sensations in the chest and severe headaches, from which symptoms she claimed she could secure only temporary relief while fully under the combined influence of alcohol and opium. She suffered from insomnia and melancholia, and indulged in speech and acts which had brought her sanity into question among her friends. Her rapid heart action, somewhat prominent eyes, a moderately sized soft struma, a slight tremor, and her highly neurotic and erratic manner and actions made the complete diagnosis exophthalmic goiter, hysteria, alcoholism and morphinism. Dr. L. Kolipinski, who saw this case with me, suggested the use of chromium sulphate for her primary disease, as described by him at the last year's meeting of this Society. She began using one grain of caffeine every three hours with a view of overcoming the craving for alcohol, also every four hours two grains of chromium sulphate. For three days she surreptitiously consumed large amounts of whisky and gin, but on the fourth she declared she had no further desire for the narcotics, and save one short relapse has abstained from their use. During the next few days all the disturbing symptoms dis-

appeared, the pulse rate fell to 85, temperature normal, and the patient rapidly took on the appearance of perfect health, much to the surprise of her friends. At present she is regularly employed as an attendant in an orphan asylum.

Case III.—Mr. B., sixty-five years old, a chronic drunkard, intoxication continuous. He suffers from chronic gastritis, alcoholic amaurosis, attacks of spasmodic asthma, and occasional attacks of alcoholic sensory neuritis. The gait is heavy and shuffling, speech thick, ideas extravagant. He is melancholy and constantly complaining about his ill-health. His face is turgid and sodden; eyes much congested. He has given up his business on account of these symptoms, which, in his opinion have condemned him to chronic invalidism. Caffeine in $1\frac{1}{2}$ and, later, in two-grain doses removed all these symptoms speedily. He declared himself as feeling better, the first time he had made such a statement in a professional acquaintance of five years. On account of his age and the ignorant opposition of his family, no attempt was made to induce him to give up the use of alcohol or to explain to him the fundamental cause of his illness. While the caffeine did not succeed in displacing the alcohol in this case, still the patient was for a time perfectly sober while consuming the usual amount of whisky.

Case IV.—A woman, fifty years old, suffered with chronic gastritis of some months' duration, due to beer drinking. She was much excited in her manner, was unable to eat, had daily attacks of vomiting, was sleepless and restless at night, feared to be alone, and, all in all, was on the verge of an attack of delirium tremens. She was directed to take an abundance of liquid food, was given $1\frac{1}{2}$ grains of caffeine three times daily, and ordered to stop the use of alcoholic intoxicants. Her recovery was complete in a few days.

Numbers of other cases might be cited, but the above are fair sample histories.

Caffeine has its toxicological^{8, 9, 10} history, but as four grains⁷ have been given hypodermically and repeated four times in a case of post-partum hemorrhage, and $4\frac{1}{2}$ grains,⁶ repeated 10 times in the adynamic state of typhoid fever, it would seem that there is a wide margin in which to allow for idiosyncrasies. I have not used more than two grains at one dose, and prefer the small dose at short intervals.

As might be expected, most patients under the influence of caffeine do not sleep, though some do, but their insomnia differs radically from that of alcoholism, and, so far as I have observed, does not lead on to delirium, it having been described to me as a perfectly contented, blissful condition.

In conclusion, I hope I will not be misconstrued into advocating caffeine as a specific in all cases of alcoholic toxemia to the exclusion of all other remedies and measures. However, I am strongly inclined to credit caffeine with a physiological antagonism to alcohol as clearly marked and as easily demonstrated as that existing between belladonna and opium. If this point is once established, the contention that alcoholism is a dis-

case will be abandoned and the fact that it is a toxemia must be admitted.

BIBLIOGRAPHY.

1. Sajous' Annual, Vol. I, Alcohol.
2. W. Bevan Lewis, Jour. of Mental Sciences, Vol. XXIX, p. 167.
3. Lewis Shapter, Med. Times and Gaz., London, July 9, 1881.
4. G. B. Kaufman, in Columbia M.J., 1901, Vol. XXV, p. 368.
5. Sajous' Annual, Vol. II, Caffeine.
6. T. D. Crothers in Quarterly Jour. of Inebriety, January, 1903.
7. Miarochi, Therap. Gaz., Detroit, 1890, p. 699.
8. Prof. Sée, Therap. Gaz., Detroit, 1890, p. 329.
9. Edward T. Reichert, Therap. Gaz., Detroit, 1890.
10. Semmola and Marcine, Therap. Gaz., 1890.

A CASE OF CHRONIC LYMPHATIC LEUCEMIA WITHOUT ENLARGEMENT OF THE LYMPH NODES.

BY GEORGE BLUMER, M.D.,

OF ALBANY, N. Y.;

PROFESSOR OF PATHOLOGY AND BACTERIOLOGY IN THE ALBANY
MEDICAL COLLEGE;

AND

HERMON C. GORDINIER, M.D.,

OF TROY, N. Y.;

PROFESSOR OF PHYSIOLOGY IN THE ALBANY MEDICAL COLLEGE.

OUR knowledge of the pathology of leucemia is intimately dependent on our knowledge of the development of the different forms of white blood cells, and their relation to the blood-forming organs. In conditions such as leucemia where there is disagreement as to the origin of the disease, a case which varies from the disease type may often throw more light on the problem than one which is typical. We, therefore, venture to report the following case, which differs from the ordinary case of lymphatic leucemia in many respects.

The following is a summary of the main facts from a clinical and pathological standpoint:

Case.—Mrs. J. G., aged forty-five years; housewife. *Family History.*—Her father and mother are dead, of unknown causes. One of her sisters died of cancer of the liver, secondary to gall-stones. She has two sisters and one brother living and well.

Personal History.—The patient was married at twenty-one. She has had five children. Three are living and well. One died of scarlet fever, and the other of some obscure disease. She has never been ill since childhood, save with child-bearing, until the onset of the present illness.

Present History.—The patient consulted Dr. Gordinier, at his office, two weeks prior to her death, with the statement that her present illness began about one year ago, with breathlessness and fatigue on exertion, together with diminution of appetite and dizziness. These symptoms have gradually increased, and have been accompanied by a gradually increasing pallor of the skin. At present there is marked dyspnea on the slightest exertion. She cannot lie recumbent, but in order to be comfortable must be propped up in bed with pillows. She has had, at no time, diarrhea or stomach disturbances of any kind. She says that she has never been jaundiced or bled from the nose, gums, mouth or rectum, and her menstruation was always normal in amount and without discomfort, up to two years ago when it ceased.

Present Condition.—She is moderately well built, weight 150 pounds. She is of a dingy yellow complexion. The conjunctivæ are pearly white, and all visible mucous membranes are exceedingly pale. There is no apparent general emaciation. The musculature is everywhere flabby, and there is soft edema of the legs, especially about the ankles and along each tibia. The pulse is rapid, easily compressed, regular, and evidently of very low tension. The arterial walls are not thickened. The respirations are somewhat hurried, 24 per minute. There are no dilated veins over the chest or abdomen. The apex beat is feeble, diffuse, and appears displaced slightly downward and outward. The area of cardiac dulness begins above the fourth rib, and extends from the midsternal line $2\frac{1}{2}$ cm. to the left of its normal position in the fifth intercostal space. There is no bulging of the precordia, thrill, or friction fremitus. At the apex, a soft, blowing murmur is heard which is conducted rather faintly to the midaxillary line. Over the aortic interspace there exists a soft systolic and a diastolic murmur, the latter being very soft and conducted a short distance over the body of the sternum, but not heard at the apex. A distinct venous hum is heard on each side of the neck. The carotids pulsate rather prominently but no murmur is heard over either of them. No double tone is heard in the femorals. There is no capillary pulse. The lungs are negative save for the physical signs of a moderate degree of emphysema. The superficial fat is well developed. The splenic dulness begins at the eighth rib in the midaxillary line and extends downward to the eleventh rib. The spleen may be palpated by thrusting the hand slightly beneath the left costal border. The liver dulness begins beneath the fifth rib and extends about 2 cm. below the free border of the ribs. The liver is easily palpated. Its lower border presents nothing abnormal. On the outer surface of the right thigh just above the knee, exists a well-defined, rather oblong, somewhat irregular scar due to an old injury. No evidence of any syphilitic lesion could be found. The stomach tympanicity was carefully mapped out after inflation, and found to occupy its normal area. The abdomen was universally tympanitic, soft, and presented no flatness in either flank. The rectum and the uterus presented nothing abnormal. There was tenderness on percussion over the lower part of the sternum and over the lower costal cartilages, as well as of the long bones of the lower extremities. There was no tenderness on percussion of the skull, or over the splenic or hepatic regions. *Glandular System.*—The most careful search failed to disclose the slightest enlargement of the lymphatic apparatus, either superficial or deep. The mouth, throat and larynx showed a very pale mucous membrane but no enlargement of the tonsils or follicles. The tongue was pale and coated with a slight yellowish fur. It was protruded straight and was movable in all directions. The gums were exceedingly pale and not vascular. *Nervous System.*—The cranial

nerves were all normal. The optic discs showed none of the characteristic changes often found in leucemia. The pupils were midwide and presented normal reactions. Hearing was acute in each ear. The patient's gait presented nothing abnormal, save that it was an effort for her to walk owing to her great weakness, and the fatigue excited thereby. The motor power seemed fairly good. There was no sensory disturbance, no patches of anesthesia, no ataxia. Both the superficial and deep reflexes were normal. She had perfect control over the organic reflexes. The muscles, though flabby, were not apparently atrophic, and were not tender on pressure. There was no tenderness of the accessible peripheral nerves. The skin was pale, not thickened, and presented no eruptions. The urine was of amber color, sp. gr. 1.022. It contained no albumin, sugar, casts or blood, but a rich deposit of uric acid.

The day before her death, all the above-mentioned subjective symptoms were greatly exaggerated and the pallor seemed much increased. There was marked dyspnea, the patient lying semirecumbent in bed, evidently suffering from intense air-hunger. There was no cyanosis. The heart was rapid. The muscular element of the first sound was very weak. The pulse was 140 and the temperature 104° F. There were numerous subcrepitant râles at the bases of the lungs posteriorly, doubtless due to beginning pulmonary edema. The tenderness over the bones was increased. Liver and splenic dulness was not changed.

The Blood.—At the time of the first visit a blood examination showed the following: Hemoglobin (Dare, Gowers), 35 per cent.; red corpuscles, 1,625,000; leucocytes, 130,000. The blood to the naked eye appeared watery, and had a whitish tinge.

A differential count of 1,000 leucocytes showed the following:

Polynuclears	33—3.3 per cent.
Large mononuclears	15—1.5 per cent.
Transitionals	9—.9 per cent.
Small and medium-sized mononuclears	94—94.0 per cent.
Eosinophiles	1—.1 per cent.
Mast cells	1—.1 per cent.
Myelocytes (neutrophilic)	1—.1 per cent.
Nucleated reds (normoblasts).....	18

The day before the patient's death the hemoglobin had fallen to 30 per cent.

Microscopic Examination of Stained Specimens.—The red corpuscles present a moderate amount of variation in size. There are a very few, if any macrocytes, but a good many microcytes are seen. A slight degree of poikilocytosis is present. The red cells show a central pallor. Nucleated reds are occasionally seen, all of the normoblast type. The leucocytes, as shown by the differential count, diverge greatly from the normal. The prevailing type of cell is a mononuclear element, resembling the small mononuclear cell of normal blood, from which, however,

it differs in certain respects. This cell is about the size of the red corpuscles, though sometimes smaller and sometimes larger. It possesses a spherical nucleus surrounded by a very narrow zone of protoplasm. The nucleus is usually fairly regular, but at times shows slight flattening or indentation on one side, it stains with moderate intensity and shows a well marked nuclear network, with occasional nodular swellings, but no definite nucleoli. The protoplasm which is often more apparent on one side of the nucleus than on the other, is free from granules, and stains as a rule faintly pink with Ehrlich's triple stain. Occasionally the protoplasm is basophilic rather than acidophilic, but this is the exception. Some of these cells suggest very strongly nucleated reds, but comparison with nucleated reds in the same blood shows that they possess a much larger amount of protoplasm, staining much pinker and a more solid, more deeply staining nucleus.

A second type of leucocyte present in very much smaller numbers than the form just described was about midway in size between the small mononuclear and the normal large mononuclear of the blood. These cells possess a much larger amount of protoplasm than the first variety, the amount of protoplasm varying in different cells. The nucleus, which is quite often extra central, is spherical or ovoid as a rule, though at times flattened on one side or indented. The nucleus stains less intensely than that of the smaller cells, the chromatin network is rather coarse, and shows in many instances nodular thickening about the edge of the nucleus, resembling those seen in the ordinary plasma cell. Many of these cells show definite nucleoli. The protoplasm is free from granules and is acidophilic.

A third type of cell occasionally seen was a very large, oblong, faintly staining body devoid of granules or of nucleus, and evidently in an advanced stage of degeneration. These cells resemble the large degenerated forms described by various observers in cases of acute lymphatic leucemia. Typical polynuclears, large mononuclears and transitionals are occasionally noted. One eosinophile, one neutrophilic myelocyte, and one mast cell were observed in counting one thousand leucocytes. The blood plates appear normal in amount.

The patient died ten days after she was first seen, and the autopsy was performed ten hours after death, the weather being cool.

The anatomical diagnosis was as follows: Lymphatic leucemia with very marked changes in the bone marrow, and with practically no changes in the lymph glands. Edema and congestion of the lungs. Marked fatty degeneration of the heart muscle. Swelling of the spleen. Marked cloudy swelling of the kidneys with multiple superficial areas of necrosis (?). Small stone in the pelvis of the left kidney. Slight, chronic, passive congestion of the liver with cholelithiasis.

The following are the notes made at the

autopsy: Body 165 cm. in length; strongly built; well nourished. Marked rigor mortis. Slight lividity of the dependent parts. Surface is pale. Left leg is larger than right and edematous. Mucous membranes are extremely pale. The superficial glands are not palpable. Subcutaneous fat is moderate in amount and unusually yellow. Muscles are well developed. The peritoneal cavity is perfectly dry; both layers are smooth. The omentum is free from adhesions and contains a moderate amount of fat. The glands are not apparent. The appendix is retroperitoneal, runs upward immediately in front of the right kidney, and is transformed into a fibrous cord in which no lumen is apparent. The foramen of Winslow is open. Diaphragm—right side, fourth rib; left side, fourth space. The axillary glands of the left side are very slightly enlarged, the largest found being 15 mm. in diameter, and slightly whiter and more opaque-looking than normal. The mammary glands are normal looking. The costal cartilages are not ossified. The precordia measures 10 x 10 cm. The pericardium contains 60 or 70 c.c. of clear fluid. Two or three white nodules of connective tissue are present on the parietal pericardium. The visceral pericardium is normal.

Heart.—The right side of the heart contains fluid blood and post-mortem clots of a pinkish color, covered with an irregular gray coating. The endocardium and valves of the right side are normal. The average thickness of the right ventricle is 5 mm. The left side of the heart is almost empty, except for a clot adherent to the mitral valve. The valves on the left side are normal, endocardium also normal. The heart muscle is flabby and shows a well-marked, faded leaf appearance, especially in the papillary muscles. The coronary arteries show a few patches of early atheroma. The auricular appendages are free from clot. The foramen ovale is closed.

Lungs.—The left lung is adherent by old adhesions posteriorly and laterally over the lower lobe; is everywhere crepitant, but feels much firmer than normal. On section both lobes are slightly congested and markedly edematous. The bronchi contain frothy mucus; they appear normal. The large blood vessels contain post-mortem clots. The right lung is free from adhesions. It is crepitant throughout, and presents in every way the same appearance as the left. The bronchi and vessels are as on the other side. The bronchial glands are not enlarged but are deeply pigmented. They show no signs of tubercles.

The spleen is free from adhesions. It is much enlarged, and measures 16x10½x5½ cm. The surface is smooth. The consistency is much softer than normal. On section the pulp is increased; the Malpighian bodies are only occasionally to be made out, and are not enlarged. The trabeculae of the spleen do not appear to be increased in amount.

The liver is free from adhesions. It is considerably enlarged, and measures 24x20x9 cm. The capsule is smooth. The consistency is softer

than normal. On section the centers of the lobules are slightly congested; their peripheries are pale. Scattered through the organ are a very few slightly opaque rounded nodules not larger than miliary tubercles, which suggest lymphomata.

The gall-bladder contains 63 faceted gall-stones, varying in diameter from ½ to 1½ cm., of a very light specific gravity, and apparently consisting of a nucleus of bile salts surrounded by cholesterin. The left adrenal is normal in appearance, except for a post-mortem cavity.

The left kidney measures 11½x5½x4½ cm. In the apex of one of the calices is an almost black, firm calculus, 3 mm. in diameter. The capsule strips easily, leaving a pale surface. Dotted over the surface are numerous rounded opaque white areas just on the border of visibility. They do not impress one as lymphomata but rather as some form of degeneration. On section an occasional similar area is seen. The pallor of the kidney is still apparent. The cortex averages 7 mm. in width. The cortex markings are almost absent. Most of the glomeruli are pale, a few are congested. The pelvis is normal. The right adrenal shows post-mortem change.

The right kidney measures 11½x5x4½ cm. Its appearance is the same as its fellow.

The ureters and bladder are normal.

Uterus.—The external os contains one or two fresh looking clots. The vagina is normal. The glands of Naboth are enlarged, forming cysts. The uterine wall is thickened, averaging 2 cm. in thickness. The endometrium is pale and slightly thickened. The tubes are free from adhesions and normal looking. The ovaries are partly sclerotic, especially the right. The left contains a fairly fresh corpus luteum.

Rectum.—The mucous membrane is pale and the follicles are distinctly enlarged. The mesenteric lymph glands are but slightly if at all enlarged. Some of them are congested, others pale. The retroperitoneal lymph glands are not enlarged. Glands which can be definitely made out to the naked eye as hemolymph glands are not apparent. The glands in the hilum of the liver, the perigastric glands, the peripancreatic glands, the posterior mediastinal, the iliac and the inguinal glands are not enlarged, although the inguinal glands on the left side appear a little firmer than normal and are slightly opaque. The aorta shows a few patches of fibrous and fatty atheroma. The stomach is dilated. The mucous membrane is pale and covered with sticky mucus. The pancreas is perfectly normal. The bone marrow of the left femur has lost entirely its yellow appearance and is converted into lymphoid marrow. The bone marrow of the right femur is the same as that of the opposite side, of a mottled grayish-red color.

Intestines.—One or two of the Peyer's patches show a shaven beard appearance. The solitary follicles are slightly swollen just above the valve and in the large intestine.

Microscopic Examination.—The bone marrow of the femur is completely transformed into a tis-

sue resembling lymphatic tissue. Under the low power it appears as closely packed mononuclear cells separated by a fine reticulum and containing occasional blood channels, some of which are markedly dilated. With higher powers the predominating cells are mononuclear elements resembling those seen in the circulating blood. The larger number of these are about the size of a red blood cell, if anything rather larger than a red corpuscle. These cells have a rounded nucleus, staining rather darkly with hematoxylin, and with a fairly well marked, rather coarse, chromatin network. The chromatin network shows occasional thickening, but no definite nucleoli. The protoplasm varies in amount, but is usually scant and stains faintly with eosin. Next in number to these cells, are much larger mononuclear elements, with a rounded nucleus, often situated extracentrally, and a good deal of protoplasm. The nucleus stains a trifle more faintly than that of the smaller cells, but has the same marked chromatin network, which tends to be concentrated at the periphery of the nucleus. Definite nucleoli are present in many of these cells. The protoplasm is markedly acidophile. No granules are present in the protoplasm of either of these types of cells, which form the great mass of the elements found in the bone marrow. Besides these cells there are seen a few myelocytes, both eosinophilic and neutrophilic, and a very few bone marrow giant cells, distorted in shape, with degenerated nuclei and protoplasm. A very few polynuclears are seen. Red cells are present in rather small numbers, but nucleated reds are scarce and of the normoblast type. The dilated blood spaces contain an excess of the two types of mononuclear cells described. Quite a large number of the mononuclear cells showed evidences of direct division. Indirect division was not noted, though pictures suggesting this were occasionally seen. The red bone marrow showed a similar lymphoid condition.

The Lymph Glands.—The picture varies in different glands. In the hemolymph glands, the gland appears as if injected with leucemic blood, the sinuses being distended with red blood corpuscles and leucocytes of the types found in the circulating blood. No evidence of proliferative changes in the gland structure are apparent, though the endothelial elements proliferated in places. The ordinary lymph nodes do not all present the same appearance. In some, and especially the retroperitoneal lymph nodes, a chronic lymphadenitis of a patchy character is present, quite large areas of gland tissues being replaced by a dense connective tissue. Many of the lymph nodes, particularly the smaller ones are with difficulty to be distinguished from the bone marrow at first glance. The germinal centers have entirely disappeared, and the sinuses are so closely packed with mononuclear cells, that the absence of red cells is the only feature which rules out the bone marrow. Under the higher powers the resemblance to the lymphoid bone marrow is still quite striking for the cells composing the lymph glands

are mononuclear elements of the two types predominating in the bone marrow, and in places giant cells of the bone marrow type occur in small numbers. The proper cells of the lymph gland can be distinguished from the mononuclear cells of bone marrow origin by their tinctorial characters, and show no evidence of proliferation. The endothelial cells along the trabeculae are in places proliferated and have taken on phagocytic properties.

The Intestine.—The lymphatic apparatus of the intestine is diffuse. The follicles are not sharply defined but shade off into the submucosa. Changes similar to those seen in the lymph nodes are present in the lymphatic apparatus, and the submucosa is diffuse and infiltrated to a slight degree with mononuclear cells, similar to those seen in the blood.

The Spleen.—There is a diffuse infiltration of the pulp with mononuclear cells, so that the Malpighian corpuscles are as a rule not seen as localized collections of cells but bleed into the surrounding pulp. The cells are of the types which predominate in the bone marrow and lymph glands. An occasional eosinophile myelocyte is seen, and in one section a cell resembling a bone marrow giant cell was met with. Nucleated red blood cells are also present, but in no larger proportion than they occur in the peripheral circulation. There is no evidence of increased blood destruction or of proliferation of the lymphatic apparatus. The finer trabeculae are slightly increased in some areas, but there is no increase in the larger trabeculae.

The Liver.—The liver cells are swollen and granular and occasional fatty cells are seen. The cells do not contain hemosiderin. The capillaries are narrowed by the swollen cells, and the blood in them shows the same excess of mononuclears seen elsewhere. Nucleated red corpuscles are no more numerous than in the circulating blood. Definite lymphomata are not present, though the portal connective tissue is more or less definitely infiltrated with mononuclear cells of the types seen in the blood.

The Kidney.—Aside from marked cloudy swelling and the usual blood changes the kidney shows nothing of importance.

The heart muscle shows a slight increase in the interstitial tissue about the larger vessels. The muscle cells are many of them vacuolated.

The voluntary muscles show a moderate number of encapsulated trichinae. The remaining organs show nothing of importance.

At the present time writers on the pathology of leucemia may be divided into two groups. One group, in which Ehrlich is the central figure, holds that myelogenous leucemia results from disease in the bone marrow, and lymphatic leucemia from disease in the lymph glands. The other group, influenced by the views of Neumann, believes that leucemia, no matter what the blood picture may be, is always primarily a disease of the bone marrow. Pappenheim is perhaps the most prominent exponent of this group.

The view of Ehrlich, which his co-workers

Lazarus and Pinkus share with him, is markedly influenced by his ideas as to the origin of the different forms of leucocytes. He denies the presence in the bone marrow, under normal circumstances, of cells corresponding to the lymphocytes of the blood, and claims that the only non-granular mononuclear cell constantly found in the bone marrow is a cell which corresponds to the large mononuclear leucocyte. He believes that the lymphocyte originates in the lymph glands and other lymphatic tissues. It is obvious that holding these beliefs he cannot logically admit lymphatic leucemia as primarily a disease of the bone marrow. As Reed has pointed out, the conclusions of Ehrlich's school are open to the criticism, that they are based largely on studies of the morphology of the blood, and the clinical study of cases, while the study of the bone marrow has been relatively neglected.

On the other hand, the exponents of the bone marrow origin of leucemia, Pappenheim, Waltz, Reed, Bradenburg and others, have relied on their studies of the hematopoietic organs for their conception of the pathology of the disease. They, as well as other observers, have constantly found in normal bone marrow, cells which are indistinguishable from the lymphocytes of the blood, and they can therefore logically conceive of a lymphatic leucemia originating from changes in the bone marrow alone.

The case here reported resembles in all important respects similar cases reported in the last few years, particularly cases reported by Pappenheim and Reed. The clinical picture of all these cases suggests a severe anemia; in one of Pappenheim's cases and in our case it was suggestive of pernicious anemia. The course of most of the cases is acute, though in our case and one of Pappenheim's the history indicated an illness of at least a year's duration. The striking features in the pathological examination are the marked lymphoid change in the marrow of the long bones, and the absence of enlargement of the lymph nodes and lymphatic apparatus generally. The histological changes strongly indicate that the bone marrow lesion is the primary one and that the excessive escape of leucocytes into the blood takes place from the diseased marrow. The changes in the lymphatic apparatus indicate that the part played by it is a passive rather than an active one.

The points of interest in these cases lie in the blood changes, the bone marrow changes, and the relation of such cases to leucemia in general and to allied diseases.

The main interest in the blood changes relates to the character of the mononuclear cells which show such marked increase. While they resemble quite closely the normal lymphocyte, they present points of difference, the most important of these being the acidophile character of their protoplasm. Both Pappenheim and Rubenstein believe that lymphocytes and red blood corpuscles may originate from an ancestral cell which is common to both, a view which Reed supports.

The latter observer suggests that the cells which predominated in her case, which are undoubtedly the same cells that predominate in our case, possibly represent such an ancestral cell. It is necessary to state however that the tinctorial behavior of the protoplasm in the mononuclear elements in our case and in Reed's does not correspond in most instances to Pappenheim's description of his ancestral cell (myelogonie), nor to Rubenstein's "mother cells," both of which are said to have faintly basophilic protoplasm. While some of the elements increased in our case have a basophilic protoplasm, others have faintly but distinctly acidophilic protoplasm. It is questionable, however, whether the possible identity of these different cell forms should be excluded merely on account of slight tinctorial differences in the protoplasm. If we accept the view that these cells represent ancestral cells, it would seem necessary to assume that for some reason these cells, which show evidences of marked activity as far as reproduction is concerned, have lost their power of developing beyond a certain point, i.e., they are no longer capable of completing their cycle of existence. This is shown by the fact that both nucleated red cells and typical lymphocytes are extremely rare, both in the bone marrow and in the circulation. It is difficult to imagine why cells which show such marked evidences of proliferative activity should lose their function of differentiation, unless it is that their rapid extrusion into the blood current places them in a medium unfavorable for their further development. If such a theory of arrested development of an ancestral, or, as Reed calls it, a mother cell, is tenable, it would explain both the anemia and the lack of typical lymphocytes.

On the other hand, it cannot be denied that these cells may be merely an early stage of the ordinary lymphocyte such as is not found in the peripheral circulation under normal circumstances. The assumption that they represent an ancestral cell is strongly suggested by their close resemblance to lymphocytes, their acidophilic protoplasm, and their resemblance to nucleated red cells, but, as Reed very properly says, the staining reaction of cell protoplasm is a slight and variable criterion on which to base cell relationships, and we may add that this is especially so when we are dealing with the ordinary acid dyes for which the protoplasm of so many varieties of cell possess an affinity.

The larger mononuclear elements described in this case cannot be sharply separated from the group just discussed, inasmuch as their size and certain slight differences in their nuclei seem insufficient grounds for placing them in a separate class; furthermore, cells are seen in the blood which seem to connect these two groups.

The change in the bone marrow in this case, as in similar cases reported, would seem to be best classed as a hyperplasia. This would also seem to be the lesion in splenomyelogenous leucemia and in leucocytosis, the essential difference in the changes in these diseases being a qualitative one.

Why in one instance the hyperplasia should affect all the elements of the bone marrow, as is the case in myelocytic leucemia, and in another only the mononuclear elements should be involved as in lymphoid leucemia it is difficult to state. The resemblance of leucemia to an infectious process and the known action of chemotaxis in infectious leucocytosis suggests, as Reed has observed, that leucemia is due to the action of some chemotactic agent, or agents, which by withdrawing certain varieties of leucocytes from the bone marrow cause a compensatory hyperplasia to replace the elements of the type withdrawn.

This hypothesis necessarily assumes the existence of different chemotactic agents specific for the different types of leucocytes, an assumption which seems to us perfectly justifiable if we compare leucemia with infectious processes. As is well known not all of the chemotactic substances produced in infectious diseases attract the same varieties of leucocytes. That bone marrow hyperplasia per se is incapable of producing the blood picture of leucemia is shown by a number of recorded cases in which this condition existed without the clinical picture of leucemia.

Judging from this case and similar ones in the literature, the changes in the lymphatic apparatus would seem to be entirely secondary, and in the nature of an infiltration with cells derived from the diseased bone marrow, at times associated with a simple hyperplasia. As has already been stated there was no evidence in this case, or in similar cases in the literature, of any active formation of mononuclear cells in the lymphatic apparatus, and nothing to lead one to believe that the increase of the mononuclear cells in the blood was due to changes in the lymphatic tissues.

The relation of cases of lymphatic leucemia to so-called pseudoleucemia has been widely discussed, both by those who uphold the lymph gland origin of lymphatic leucemia and those who believe in its origin from bone marrow changes. As far as one can judge from the literature it has been taken for granted, almost universally, that pseudoleucemia differs from lymphatic leucemia merely in the absence of the blood changes, the histological changes in the organs being the same. As Reed points out the term pseudoleucemia has been used in a very loose fashion, so that it is quite probable that a number of diseases have been grouped under this head. As far as typical Hodgkin's disease is concerned we now know, from Reed's very careful studies, that it presents perfectly definite histological lesions, which are entirely different from the lesions of lymphatic leucemia, so that the possibility of any relationship between the two diseases is practically excluded. As long as our knowledge of the various conditions classed under the head of pseudoleucemia (Hodgkin's disease excepted) is so imperfect, it would seem impracticable to intelligently discuss the relationship of these cases to true leucemia.

The possible relation of cases of this sort to pernicious anemia was suggested by the clinical

appearance and history of our patient, as was the case in one of Pappenheim's patients. The possibility that a preleukemic pernicious anemia can occur in these cases is discussed by Pappenheim in connection with a case reported by Körmöczy in which leucemia was preceded by pernicious anemia. We can see no reason why the two diseases should not follow each other at times merely as a matter of coincidence, but that any causal relationship should exist between the two diseases seems unlikely. In our case, and in the other cases described in the literature, the changes in the spleen, liver, and hemolymph glands which are characteristic of pernicious anemia, were not present. As Pappenheim points out, in leucemia we are dealing with a primary specific bone-marrow disease leading to the excessive formation of certain elements of the blood, while in pernicious anemia we are dealing with a non-specific secondary change of a compensatory character.

Finally, we wish to discuss our conclusions as to the deductions to be made from these cases. As far as myelocytic leucemia is concerned there is at present practically a unanimity of opinion that it is due to disease of the bone marrow. As regards lymphatic leucemia, as already stated, the school of Ehrlich regards it as always primarily a disease of the lymph glands, while the school of Neumann regards it as always primarily a disease of the bone marrow. We believe that both schools take extreme views. There is good evidence, in our opinion, that cells of the lymphatic type are formed in normal adults, both in the lymphatic apparatus and the bone marrow. Theoretically, therefore, it should be possible to have lymphatic leucemia as a result of disease of the lymphatic apparatus, or of the bone marrow, or of both. In the recent study of the blood and organs of a case of lymphatic leucemia of the ordinary type, we observed that the increase in the leucocytes was for the most part an increase in typical lymphocytes, whereas in the case without enlargement of the lymph glands the increase in leucocytes was in cells differing from the ordinary lymphocyte, as we have described. On the other hand in the case without enlargement of the glands there was no evidence of increase in the proper cells of the lymphatic apparatus, while in the typical case of lymphocytic leucemia numerous cells undergoing direct division were to be made out in the lymph glands. We would therefore suggest that while myelocytic leucemia is invariably a disease of the bone marrow, lymphocytic leucemia may be a disease either of the lymphatic apparatus or the bone marrow, or both, and we would further express the belief that specific differences exist between the blood picture of the different forms.

New Private Pavilion at St. Luke's.—Thanks to the munificence of an unknown donor, St. Luke's Hospital is to have a new private patients' pavilion, thoroughly equipped. It is to be modern in every respect and will prove a great addition to the hospital.

MEDICAL PROGRESS.

MEDICINE.

Pernicious Anemia.—There is a spreading tendency to look upon idiopathic pernicious anemia as secondary to chronic intestinal intoxication and attempts have not been wanting to isolate some poison from intestinal contents, which might have a deleterious effect upon the red blood cells. Experiments of E. BLOCH (Deutsch. Arch. f. klin. Med., Vol. 77, Nos. 3 and 4) in this direction were, however, all negative. Fecal extracts injected into animals either caused a rapid death or temporary illness with but slight anemia. Estimation of indican and ether-sulf. acids sometimes gave normal, sometimes slightly increased figures, such as may occur in any healthy organism. A determination of the toxicity of urine by injecting it into animals led to no results and a special toxicity of the blood serum could not be proven. The infectious stomatitis which is regarded by Hunter as a portal of entry for certain poisons, is nothing but a result of the disease, secondary to necrosis from submucous hemorrhages. The facts that nitrogenous metabolism often moves within normal limits, that full diet often agrees well and that a diet directed against undue fermentation does not necessarily bring about improvement, also speak against an enteric origin. Atrophy of the gastric and intestinal glands cannot be held accountable for the disease since it is often found post mortem in its most advanced form in infants who never gave symptoms of pernicious anemia during life. Intoxication due to the absence of internal secretion is also unlikely, since the blood was not seriously altered in cases with diseased ductless glands. Certain chemical substances were injected in the hope of finding some clue as to the nature of the toxin, if such exists, but phenylhydrazine and other well-known blood-poisons, while inducing a severe and often fatal anemia when injected in large doses, will hardly cause marked changes in small, repeated amounts, since a certain tolerance is soon established. In a few published cases, a small malignant tumor, generally in the stomach, was found but there is no reason to assume that this stands in causative relation to the anemia, even where it causes small, repeated hemorrhages. There are also cases on record where pernicious anemia appeared in patients suffering from severe tuberculosis but there can be no connection since the anemia improved without arsenic while the lung condition progressed steadily. Likewise there is no reason to assume that syphilis or malaria form an etiological factor. It is probable that all these infections and intoxications are only indirectly guilty, that by acting upon a hematopoietic system with individual, non-inherited lack of resistance they may sometimes assist in bringing about the anemia without being actually the cause of it. It is, however, possible that extrinsic causes may occasionally be so powerful that a special disposition is not required but this is certainly very rare and only applies to tumors of the bone-marrow. Sometimes lymphatic leucemia develops here after pernicious anemia, which can be explained by irritation of the new-formed cells upon the lymphatic tissue. That a disposition is necessary to set up a pernicious anemia is demonstrated by the case of a woman who suffered for years from a hemorrhoidal hemorrhage and besides was infected with bothrioccephali and yet only developed a severe secondary anemia. In another case a combination of severe, chronic malaria, syphilis and tuberculosis had the same effect. According to some, constitutional weakness of the hematopoietic system is coupled with other anatomical peculiarities such as relative small size of heart and liver, voluminous lungs,

narrow arteries and short small intestines, but Bloch's cases did not show these variations in size. It would be desirable to determine the lack of resistance on part of the red cells by some clinical method, before the disease has so fully developed as to be easily diagnosed, but we are as yet unable to do this.

Posttyphoid Sepsis.—Typhoid fever, as a disease, regularly lasts for four weeks with periods of improvement at the end of the second and third weeks. These periods of improvement may be permanent so that we have two-week, three-week and four-week typhoids. It is not generally recognized that if the patient has fever after these periods that it is usually not typhoid, unless there is a true relapse. F. DELAFIELD (Med. Rec., Sept. 12, 1903) lays particular stress upon the fact that when a person suffers from a bacterial infection like typhoid that the infection itself does not constitute the disease. These must go together—the bacterial infection, the intestinal lesions and the various morbid changes. When the disease has run its course, there may be infections of various parts of the body with typhoid bacilli or pyogenic bacteria but they are not typhoid fever. The true relapses which are really fresh attacks of typhoid with the regular features of the original attack, must first be distinguished. The interval between the end of the original attack and the relapse is from three to twenty-five days. The relapse lasts from seven to thirty-nine days. A second relapse is comparatively rare. The posttyphoid fevers which are not typhoid fever, may be divided into three classes: (1) The ordinary moderate rises of temperature only lasting a few hours and not accompanied with symptoms. They cause no harm and the only important thing about them is to recognize that they are of no importance. (2) The posttyphoid fevers, which are of real importance, but yet do not make the patient very ill and are not fatal. The rise of temperature may be continuous with the typhoid temperature or there may be an interval of several days of normal temperature before the posttyphoid fever begins. The forenoon temperatures run close to normal but in the afternoon the fever may be 101° to 103° F. with occasional jumps to 104° or 105° F. Chills may accompany the high fever, but there is no delirium or sleeplessness and the tongue is moist and clean. There is no eruption, no tympanitis, no diarrhea and the patients are hungry. If they are not fed, they may have alarming attacks of heart failure. It is very interesting in these patients, if they are fed and taken out of bed, to see how they steadily gain flesh and strength in spite of the fever. (3) Much more important are the severe and long-continued posttyphoid fevers which may terminate fatally. They occur regularly after the full course of typhoid and may be continuous with or overlap the primary course. The temperature is moderate in the morning, running up in the afternoon. It is noticeable that these septic fevers are not controlled by baths, as is the typhoid temperature, but they run up and down quite independent of the baths. The patients look septic, may be dull but not actively delirious, the tongue is dry and there may be nausea and vomiting but there is some desire for food. There is rapid loss of flesh and strength, so that the condition may be alarming. A few autopsies have shown nothing but sepsis and starvation as a cause of death. Some of them improve on food alone but most of them show no real convalescence till they are gotten out of bed. It requires a great deal of courage to get a man out of bed who is apparently dying, but it seems to be the only way of saving the lives of the bad cases. At the end of a regular typhoid course, therefore, a new infection may appear which resembles a streptococcus infection and which can usually be distinguished from the typhoid fever. For this condition the best treatment

is food and getting the patient out of bed and in the air.

Cause of Muscle Disturbance in Thomsen's Disease.—P. Jensen (Deutsch. Arch. f. klin. Med., Vol. 77, Nos. 3 and 4) believes that the peculiar sluggish relaxation of Thomsen's disease is undoubtedly due to pathological changes in the muscle itself, but certain symptoms such as the slight contractions after applying induced currents may depend upon alterations in the nervous system, particularly in the nerve-end organs. Participation of the central nervous system is also probable on account of the small number of innervations possible during a given time. The much-prolonged descending curve of the muscle contraction indicates that either compensating assimilation is faulty, or the removal of products of dissimulation (carbonic and lactic acids, xanthin bodies) is more sluggish than normally. Assimilation is increased by warmth and this may explain why a myotonic muscle, after a number of contractions, will register a curve more nearly normal, since the previous contractions have liberated a certain amount of heat. Here the contractile fibrils would be at fault or else the sarcoplasm, which must be looked upon as the reservoir for oxygen and other substances, cannot give these up with sufficient rapidity. Less active dissimulation, if present, would also depend upon changes in the sarcoplasm. The abnormality of a myotonic muscle is probably chemical and physical and cannot be explained by histological examination. In searching for an effective drug, Jensen found that testicular extract shortens the period of relaxation considerably, but only for a short time. Even increasing doses will soon lose their effect. Tablets of thyroid extract had the same effect.

SURGERY.

Mugrai's Method for the Radical Cure of Inguinal Hernia.—The advantages of the leading methods of treating inguinal hernia are discussed by P. Bégouin (Jour. de Méd. de Bordeaux, Sept. 6, 1903) and a comparison drawn between Postemski's and Mugrai's modification of Bassini's method of restoring the wall after the radical treatment of the hernia. Postemski's method has for its object the obliteration of one orifice; to accomplish which he first restores the posterior wall of the inguinal canal as does Bassini, but instead of allowing the cord to fall into its normal position and reconstructing the anterior wall in front of it after the latter's method, he has the cord held up and closes the anterior wall also; the cord thus passing through the internal ring only and then being allowed to lie between the anterior wall and the skin. Mugrai reverses this operation by carrying the cord behind the entire inguinal canal, closing both its walls in front of the cord and allowing the latter to make its egress through the external ring. To this method the author gives the preference upon the ground that it obliterates the weaker point—the internal ring—at which recurrence most frequently occurs after operation, and carries the cord through an orifice surrounded by the most resistant tissues, namely: the crural arch, Colle's ligament, the conjoined tendon and the internal pillar.

Surgical Treatment of Colitis.—Chronic colitis is such an unsatisfactory condition to treat medically when the whole colon is involved that the benefits of surgical interference to enable thorough irrigation have been fully realized and taken advantage of in many instances. The creation of a complete artificial anus, however, causes the patient so much annoyance and subsequently condemns him to such a severe operation when his colitis has been cured that few practitioners are willing that their patients shall undergo the additional risks. C. L. Grison (Med. Rec., Sept. 12, 1903)

has devised a plan which simplifies the dangers of the original operation and avoids the necessity of resorting to further interference to close the artificial opening. A small intermuscular incision is made over the caput coli. Then reproducing the technic of the Kader gastrostomy operation, a catheter is introduced into the bowels through an opening just large enough to admit it. By using two tiers of sutures, the tube is infolded into the cecal wall, absolutely guaranteeing against any breakage, and the bowel is finally secured to the abdominal wall. Irrigations may be begun at once but it is best to wait forty-eight hours. After the tube has been in place one week it is removed, when the essential feature, the artificial valve becomes operative, for so soon as the tube is removed the infolded cone of the intestinal wall prevents absolutely the escape of the intestinal contents. After ten days the patient may leave his bed, no dressings are necessary and the catheter is inserted only when irrigations are desired. To obtain permanent closure of the fistula, it is only necessary to discontinue the treatment, for by omitting to pass the catheter, after a few days, the valvular infolding of the walls becomes permanent and the patient's surgical condition is at an end. Irrigations with saline solutions followed by gradually increasing strengths of silver nitrate have proven very beneficial. The advantages claimed for this operation are that it is devoid of every disagreeable feature of an artificial anus and calls for only a short confinement in bed, after which the patient himself can carry out the treatment and a change of climate is possible. The intermuscular operation reduces the risk of subsequent hernia and a prompt closure of the fistula is certain and spontaneous.

Thrombosis and Embolism of the Mesenteric Vessels.—Among the numerous varieties of intestinal obstruction, that due to an interference with the circulation in the larger abdominal vessels, has lately received renewed interest. The rarity of this condition and the uncertainty regarding the symptoms and diagnosis, is shown in a recent article by C. FALKENBURG (Archiv. f. klin. Chir., Vol. 70, No. 4). He reports four undoubted cases and from their study draws a few conclusions. The age of the patients varied from thirty to sixty-one years. In one there was a previous history of appendicitis, in another chronic cardiac disease, in the third a cirrhosis of the liver, and in the last a general arterial sclerosis with gangrene of the lower extremities. All the cases ended fatally and the autopsies showed thrombosis of the mesenteric veins, causing an extensive hemorrhagic infarction of the gut, with a peritonitis involving that part of the abdominal cavity in which the affected coils of gut were lying. Emboli were also found in other abdominal organs. The symptom complex of these cases does not afford a single instance of what might have been considered an exclusive sign, pointing to the lesion in question. Common to all the cases were the suddenness of the attack, the severe initial abdominal cramps and the signs of intestinal obstruction. Hemorrhage from the intestines has usually been considered by others as having an important bearing on the diagnosis, but in the author's cases no external evidences were observed although at the autopsies, it was proven to have been present. The clinical picture is that of more or less acute intestinal occlusion, which is quickly followed by symptoms of a peritonitis. Invagination is probably the form of obstruction which is most closely simulated or that due to constriction by bands. The age as before stated is perhaps the only criterion in excluding invagination. The results of operative interference are as a rule unfavorable. An exploratory laparotomy may be done and if the gangrenous intestine is limited in extent, resection may be attempted.

THE MEDICAL NEWS.

A WEEKLY JOURNAL
OF MEDICAL SCIENCE.

COMMUNICATIONS in the form of Scientific Articles, Clinical Memoranda, Correspondence or News Items of interest to the profession are invited from all parts of the world. Reprints to the number of 350 of original articles contributed exclusively to the MEDICAL NEWS will be furnished without charge if the request therefor accompanies the manuscript. When necessary to elucidate the text illustrations will be engraved from drawings or photographs furnished by the author. Manuscript should be typewritten.

SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor,
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	\$4.00
SINGLE COPIES10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	8.00

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made, at the risk of the publishers, by forwarding in registered letters.

LEA BROTHERS & CO.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, OCTOBER 31, 1903.

THE SEQUELÆ OF INFECTIONS AND PROPHYLAXIS.

TIME was scarcely more than a generation ago, when it was almost the custom to consider it not a very serious concern if the children, of families in which infectious diseases existed, were exposed to the infection, since it was said that it would probably be a saving of time and of bother in nursing them if they all came down at about the same time. Many people can still remember that they were allowed even to sleep with those suffering from contagious diseases with the idea that it would be better for them to have the disease over when they were young, since it was practically inevitable that they should suffer from it at some time or other.

With reference to the more serious diseases, scarlet fever and diphtheria, this state of mind is no longer usual. With regard to the milder ones it has not entirely passed away. Undoubtedly, however, even at the present time, there is not sufficient realization of the dangers involved in contagious diseases, or still more careful precautions would be taken than are at present the rule, to have other members of the family taken out of the danger of infection.

Many of the infectious diseases that are themselves not so likely to prove fatal, not infre-

quently have sequelæ that make the after-life of the patient much more liable to suffering and increase the tendency to early demise than would be the case without their ravages. It is evidently the duty of physicians to make this point clearer to the public generally in order that the dangers from such sequelæ may not be incurred so frequently as is now the case. For instance, even so mild an infection as measles is not infrequently followed by a distinct tendency to the development of tuberculosis of the lungs. There are good authorities, especially among the best French medical clinicians, who insist that consumption is nearly always, in families in which children have not been exposed to contagion, a sequela of measles and due to the lowering of the resistive vitality of the infectious process upon the bronchial mucous membranes. Not infrequently, too, measles has its effect upon the kidneys and thus proves to be one of the sources of the ever-increasing death-rate from nephritis, which is one of the most serious problems in the premature mortality of adults in these modern days.

A new motive for the avoidance, as far as possible, of what used to be considered the almost inevitable infection of the digestive tract in very young children, now exists in the fact that many pathologists are prone to attribute the beginnings of the pathological conditions which eventually result in attacks of chronic appendicitis as due to sequelæ of intestinal infectious processes. It is very clear that the strictures which form in the appendix are not the result of inflammatory changes going on for a few days, or a few weeks, or even a few months. It takes many years for a stricture of the urethra to form and a stricture of the appendix does not take less time, so that very probably the severe enterocolitises of early childhood and infancy are responsible for the beginning of the chronic inflammatory condition. There is more than a suspicion in the minds of many authoritative pathologists that even so important a condition as cirrhosis of the liver is the result not of alcohol alone, but of the absorption of the toxins of infectious processes in the intestinal tract.

It is now generally recognized that gall-stones are largely the result of microbic activity. Their formation would seem to be dependent on a biological protective process not unlike that which causes the formation of pearls in the oyster. The bacteria present become surrounded by a coating of bile salts deposited apparently with the purpose of segregating these organisms and prevent-

ing their action upon the biliary mucous membrane. The most frequent forms of bacteria that occur in gall-stones are the *Bacillus coli communis* and the bacillus of typhoid fever. They represent new sequela of infection which must constitute another and weighty motive for the avoidance of gastro-intestinal affections of this kind.

As the development of the diseases of the pancreas in recent years has shown that it is the presence of gall-stones blocking the common duct at the ampulla of Vater, yet allowing a patulous canal to exist which connects the biliary and pancreatic ducts that is probably the first cause for many affections of the pancreas and notably for the acute pancreatitis that so often proves fatal, as also very probably for the chronic sclerosing pancreatitis whose significance has only been realized in recent years, it is very clear that there are new reasons for the insistence on minute precautions to prevent the spread of these infectious diseases, apart from the direct mortality which they may cause.

In a word, many of the serious ailments of later life owe their initial step to the fact that microbic infections, even though they may seem comparatively trivial in their pathogeneity, or may have lost much of their fatality, are still capable of producing serious, progressive and eventually even fatal sequelæ as the result of their presence. This must make the physician realize the importance of insisting on the most careful enforcement of prophylactic precautions. In families particularly, other children must be protected and the submission to considerable inconvenience advised, even at a time when exposure already seems to have occurred in order to favor all possible avoidance of such infectious diseases. We hear less in recent years of the "ordinary diseases of childhood," as if these were more or less unavoidable incidents of ordinary child life. It is possible, though it will of course be very difficult to eradicate most of the infectious diseases in civilized communities, yet this must be the ideal toward which the medical profession itself must aim and must endeavor to lead the public. Art is as long and time as fleety as when Hippocrates uttered the maxim, yet the outlook for the lessening of danger from infectious disease is now brighter than ever.

EUTHANASIA.

It was a source of not a little surprise to the members of the New York State Medical Association, at their banquet on Wednesday evening

of last week, to have an invited guest of the clerical profession take up the subject of Euthanasia and discuss as an advocate the question of terminating the sufferings of incurable patients by deliberately facilitating their progress to an easy death.

This question has been frequently discussed by physicians among themselves, but the advocates have usually been those who have distinct tendencies to the utterance of erratic or exaggerated opinion. To have a member of the clerical profession proclaim the justifiability of shortening life in hopeless cases, where the patient is suffering uselessly, is so entirely contrary to what is generally expected in this matter, as necessarily to have attracted no little attention from the secular press.

Of course the Reverend Mr. Wright surrounded his advocacy of the justification of euthanasia with many and severe conditions. He assured the physicians that he appreciated the practical difficulties inevitable in the application of such teaching but considered that this advance in practical ethics was not entirely beyond the bounds of possibility in the very near future. "Of course it would be necessary to have the advice and approval of men of the highest scientific attainment," he added and further suggested "that the city might be divided into districts and every application for permission to shorten life for supposedly good reasons should be considered most carefully not merely by physicians but by some eminent clergymen selected for the purpose." And besides, there should be the consent of relatives as well as the natural request of the patient himself. With all the conditions fulfilled, however, in cases in which the prolongation of life is simply the prolongation of hopeless agony, it seemed to him that the adoption of the practical principle of anticipating the inevitable end in some painless way "would be a step forward in civilization and a step further away from barbarism."

It is doubtful if all the conditions suggested by Mr. Wright could ever be fulfilled in an individual case. Even if they were, his suggestion seems to lack a basis in essential morality. The right to take life does not belong to any man or set of men, though it does belong to government under certain conditions. As physicians well know practically no case is so hopeless but that a turn for the better may surprise the attending physician with an unexpected recovery. Every medical practitioner of any wide experience has had cases in which an inevitably fatal termination

seemed beyond all doubt, yet the patients survived not only to tell the tale of their doctors having given them up but often to outlive their physicians. Medicine is still an art and long ago Hippocrates, the great Greek Father of Medicine said "Art is long and life is short and experience is fallacious" and when he came to write his chapter on the prognosis of disease he said "This is the most difficult problem in all medicine." It still remains so.

As a matter of fact there are not many cases in which patients are as ready as is sometimes presumed to go out of existence. Young patients are apt to be somewhat impatient and demand freedom from pain at any cost but those who are tired of life and express their readiness for death, especially among the old and apparently most hopeless cases, yet have a hankering after existence that makes them cling to it in spite of pains and ills. The physician is often reminded of the old fable of *Æsop*, in which the old man calls loudly upon death to come to his rescue when he can no longer carry the burden of wood gathered for his winter fires, yet when death makes his appearance at his invitation, and demands what he called him for, he says that he called on him only to have him help carry his load of wood.

In the course of duty every physician finds it necessary at times to employ remedies for the sedation of pain, though he is sure that the employment of these remedies may lessen the patient's chances of recovery. Under the circumstances, however, he is conscious that the continuance of severe pain itself is quite as apt to abbreviate life as the remedies that he employs. It is the choice of two evils, and he deliberately chooses that one which is most humane and saves the patient from suffering. There is no doubt at all of the morality of the physician's action under the given conditions. To this degree at least, euthanasia is not a mere hypothetical theory, but a very humane practice with regard to which there need be no harassing hesitation. Physicians generally would not like to assume more responsibility than this and in the present state of our knowledge, or uncertainty, as regards the individual prognosis in disease, there is no desire to assume further burdens of decision.

X-RAYS IN SPINAL CORD LESIONS.

YET another use has been found for the Roentgen rays. In an inspiring article by E. von Leyden and E. Grumach (*Archiv für Psychiatrie und Nervenkrankheiten*, 37. Bd. 1. Heft) the authors propose their use for the diagnosing of diseases

of the spinal column and of the cord and thus further the treatment of complicated spinal conditions.

By the series of illustrations appended to the article it is particularly noteworthy how comparatively transparent the cord is. The authors refer to thirty cases in which the Roentgen rays were used for diagnosis. In twelve the rays confirmed the previous diagnosis but for the other eighteen patients a new or at least a larger picture was presented to view. In ten of these patients the disorder of the spinal cord was secondary to an affection of the bony column. In one of these there was found compression of the spinal cord in the dorsal region by a tuberculous bony process.

As a diagnosis of myelitis of syphilitic origin had been made in this case and the antisiphilitic treatment begun the change in treatment brought about by the change in diagnosis was both instructive to the physician and beneficial to the patient. The history of this case is of interest and was briefly as follows: A twenty-six year old woman, married, in previous good health, began to suffer a year and a half previously with tingling and increasing weakness in both legs. Six months later there developed twitching and clonic spasms of both legs and at times incontinence of urine. The physical examination showed total spastic paralysis in both legs in a well-nourished woman; at times clonic contractions in the hip and knee-joint on both sides. The sensibility was undisturbed. On both sides knee and foot clonus was present and Babinski was positive. Incontinence of urine also present. At no place on the spinal column was there pain either subjectively or on firm pressure. The absence of pain on pressure over the vertical axis led to an error in diagnosis, as the Roentgen rays showed a curious disturbance of bone with attempts at callous formation.

In another case there was compression of the dorsal cord. The diagnosis had been made of tuberculous spondylosis with subsequent compression of the cord. Two cases were diagnosed as spondylosis ossificans, or spondylosis rhizomelique, as some prefer to call it. Two cases were tumors; one a carcinoma, the other a sarcoma. Two others were myelitis of the cervical region from fracture, and the last of the series was one in which a diagnosis of bulbar paralysis had been made and a depression localized to the third and fourth cervical spinal process could be made out, but the application of the Roentgen rays showed clearly a disturbance of the third and fourth cer-

vical vertebrae. A glance at the eight cases in which affections of the nervous structure was primary shows seven diagnosed as osteoporosis by the Roentgen rays and one as osteoarthropathy. Proper treatment was at once begun in all of these cases and later exposure to the rays showed reduction of the bony formation and a consequent gain in health on the part of the patient.

We are perhaps not looking too far afield when we say the time has almost come when the neurologist will not be satisfied with his examination of the spinal column unless there be added Roentgen ray pictures of the part in all its details.

ECHOES AND NEWS.

NEW YORK.

New Surgical Assistants at St. Luke's.—It is reported that the Surgeons at St. Luke's are to have assistants who will not be members of the regular staff.

New Pharmacy Laboratory at Columbia.—The new pharmacy laboratory at the P. & S. is now in active operation. The second-year students are busy compounding a large number of the regular pharmacopoeial galenicals. From the interest manifested by the students, the new course is very much appreciated.

Promotions in Columbia's Medical Faculty.—The medical faculty at the College of Physicians and Surgeons has just elected Dr. Walter B. James of the Faculty of Medicine as its second representative in the Columbia University Council. Dr. James succeeded Dr. Delafield as Professor of the Practice of Medicine in 1902. At the same meeting of the faculty, President Butler's nomination of Dr. John G. Curtis as Acting Dean of the Faculty of Medicine was confirmed.

Columbia Needs a Hospital.—Columbia authorities are advocating a proposition for the acquisition of a university hospital, or a hospital under university control, where clinical instruction and the section teaching at the bedside could be carried on under the most favorable conditions, and where every facility for research would be at hand. If there is no other way than for the university to build and maintain such a hospital, it is estimated that a capital sum of fully \$2,000,000 must be raised. It is held to be vitally important that each student should see, examine, and watch the process of disease as it goes on in the patient, should study the effects of remedies as they appear to act upon the patient, and should study ill men rather than illness. The professors of medicine at Columbia hold that the individual variations in many diseases are only to be learned from direct observation of those who are suffering. The Vanderbilt Clinic affords an ample opportunity for the study of those larger forms of disease which do not confine a patient to bed. About 150,000 visits are made annually by such patients. At present during their third and fourth years the students are assigned in small sections of 12 to 16 each to the various departments

in turn, and are taught the special methods of examination and treatment by direct contact with each patient. But there are more serious types of disease which can be taught only at the bedside in the hospital. For hospital privileges the university depends largely on the good-will of the trustees of private institutions. "In the new curriculum," President Butler says, "Our present hospital facilities are made use of to the full limit of our privileges, but the need of a university hospital in which research could be carried on, and in which we could assign students to resident positions as junior assistants and so give them a wider experience than can at present be obtained is keenly felt by the Faculty."

The Question of Euthanasia.—A well-known divine of this city has created quite a sensation (among the newspapers, at least) by asserting that it is not only a mercy but a duty to put all incurables out of misery through painless execution. The daily press has taken the question up and no end of editorials are forthcoming to show cause why such a plan is or is not feasible and desirable. Such eminent men as Dr. Roosa, Dr. Jacobi, Dr. Flint, and Dr. Delafield have openly declaimed against the idea and they have said all that is necessary to show how utterly impracticable it is. The part of the speech that set the brains of the revolutionists in motion, was as follows:

"I appreciate the practical difficulties in the way of the application of the doctrine, but it seems to me that it is not beyond the bounds of possibility. Of course it would be necessary to have the advice and approval of men of the highest scientific attainment. The city might be divided into districts, and every application should be considered most carefully, not merely by physicians, but by some eminent clergymen selected for the purpose. And, of course, there should be the consent of relatives and the consent, even the request, of the patient himself."

We can only add that "Murder as a fine art" can safely be left in the hands of the military and of executioners under the law. The tortures of disease are not of human origin and cannot be relieved by inhuman annihilation of their victims.

Manhattan Dermatological Society.—A regular monthly meeting of the Manhattan Dermatological Society was held on October 2, 1903, Dr. L. Weiss presiding. Dr. C. A. Kinch presents a case of cretinism in a male child two years and nine months old; when first seen two years ago had bulging eyes with convergent squint, prominent forehead, small mouth and chin, expressionless countenance; inability to raise its head or use its limbs; bowels constipated. Thyroid treatment began with eight-tenth grain and gradually increased by one-tenth grain for each month. At the age of 1½ years, child began to walk and at two years, to talk.

Dr. Abrahams commented upon the slow progress made; under thyroid improvement is usually rapid and progressive. Dr. J. Sobel described symptoms and differential diagnosis between cretinism and a Mongolian idiot.

Dr. W. S. Gottheil presented a woman who had an eruption on the forearm of three years' and a lesion on the foot of one year's duration, which resembled lupus erythematosus. At present a diagnosis of lichen planus corneus is made owing to the corneous, hard, flat papules seen on foot. A patch on shoulder looks like a hypertrophied scar, or possibly a pigmented nevus. Dr. Sobel termed the process on the foot a keratosis; that on the

wrist probably lichen. Dr. E. L. Cocks suspects syphilis. Dr. Oberndorfer would exclude syphilis; lesion on foot he termed lichen corneus, on the wrist a lupus. Dr. L. Weiss called the wrist lesion lupus; on the foot, callosities.

Dr. E. L. Cocks presents the following case: A woman of fifty-eight years was seen in April, 1903. She gave a history of rheumatism; at that time numerous bright red papules, and macules were seen on shoulders, arms and below the knees; one month later patches had faded somewhat in center and the appearance suggested erythema annulare; case then diagnosed as erythema multiforme. On June 4 patient had a chill with rise of temperature (101° F.), pains in the joints and the entire body covered with dark-red pea-sized papules, capped with a minute vesicle, presenting the picture of a dermatitis herpeticiformis. The vesicles gradually increased to bullæ and some attained the size of an English walnut; friction on the skin would produce a blister in a few minutes. A second attack of erythematous patches followed by bullous eruption occurred about July 1, accompanied by arthritic pains. The erythematous lesions are now nearly gone, but many bullous lesions are still present. Recurrent attacks show themselves every now and then, but the attacks are less severe. Dr. Cocks presents this case as a possible connecting link between an erythema multiforme and a dermatitis herpeticiformis. The subjective symptoms and the objective signs were those of the former, while the present lesions are those of the latter. Dr. Abrahams believed this to be a case, as described by Dr. Cox; if the present lesions were of three or more months' duration he would term the condition dermatitis herpeticiformis. Dr. Gottheil favored the latter diagnosis owing to the history and the tendency to recurrence in successive crops. Dr. L. Weiss coincided with Dr. Cocks; the presence of a few vesicles on the uvula made him think of pemphigus; and the intense burning and itching (subjective symptoms) conveyed to him the condition pemphigus pruriginosus. Dr. Cocks outlined his method of treatment and claimed best results with salicin 20 gr. t.i.d. and tr. cannabis indica 10 to 30 gtt. for the pruritis.

Dr. I. P. Oberndorfer showed a man with a single patch of redness covered with dry thick scales over right elbow; patch circular and clear in the center; it began as a papule and spread to present dimensions—about a 50-cent piece. It was regarded as an annular psoriasis with clearing center.

Dr. Geyser presented a young woman of eighteen years with acne indurata facie of four years' duration. The usual therapeutic measures afforded only temporary relief. In the hope that electricity might cure the patient he intends to use a high-frequency current in preference to radiotherapy; the former can be applied directly, produces no pain nor dermatitis.

Dr. Gottheil showed the following photographs: Mycosis fungoides, chancre of lip, gumma (lower limb), leucoderma syphilitica, pemphigus "hystericus"; the latter was in a female patient with gastrointestinal crises and marked neurotic symptoms, with the development of bullous lesions.

The Economic Aspect of Sanitation.—The New York Times, speaking editorially, comments on the efficiency of the New York Department of Health as follows: "In his letter accepting renomination from the Citizens' Union Mayor Low made the following significant statements concerning the public health of New York and the efficient work of the

Health Department under his administration: The Health Department has cut down the death rate from 20 per thousand in 1901 to 18.75 per thousand in 1902, and the returns for the first eight months of this year indicate a rate of only 18 for 1903. As compared with 1901, this means for 1903 a saving of over 7,000 lives. It has virtually stamped out smallpox, which at the beginning of 1902 was raging in New York and other American cities. During the first six months of 1903 there were only 26 cases of smallpox in New York, despite its large population. In Chicago, during the same interval, there were 310 cases, and in Philadelphia 691 cases. It has vigorously fought eye disease and every form of contagion among the school children, and it has provided a system of home nursing for children shut out of school on account of illness which has greatly shortened the time thus lost. In addition, it has made systematic provision in every borough for the care of infectious disease. The means by which these results were attained have cost something. In 1903 the expenses of the sanitary administration of New York were about \$1,226,391. Taking the Mayor's statement as true that the work of the Health Department in 1903 effected a saving of 7,000 lives, how does this appear when considered as an offset to the cost of the work? Statisticians who have endeavored to establish the average value of a life to a community are agreed that \$5,000 is a very conservative estimate. On this basis, the saving on 7,000 lives in one year gives us a credit entry of \$35,000,000 and a net gain on the public health account of \$33,773,609. There is an average of at least five serious cases of illness to each death. Each sick person must be taken care of by one or more well persons. If, therefore, we assume that sickness was reduced in proportion to the deaths, it is within the truth to say that at least 70,000 weeks of useful life were gained. Really the gain was much more than this. If the average money value of time is \$10 per week, this adds \$700,000 to the credit side of the account."

We can only add that the above bespeaks the appreciation and esteem of the public for what is constantly being done in its behalf.

PHILADELPHIA.

Reception to Dr. Trudeau.—Following the lecture of Dr. E. L. Trudeau, on Saturday evening, October 24, the first in a series of lectures to be given under the auspices of the Henry Phipps Institute for the Treatment of Tuberculosis, the distinguished speaker was given a reception at the Hotel Bellevue. The profession of Philadelphia feel that a distinct impulse to the already extensive movement against tuberculosis in this city was given by Dr. Trudeau's graphic account of his work at Saranac Lake.

Damages for Broken Jaw.—The jury in the case of Margaret H. Mandeville against G. C. Courtright and others, trading as the Alba Dentist Company, returned a verdict of \$4,000 damages in favor of the plaintiff, who sued to recover for having her jaw broken by the negligence of an untrained dental student. The suit grew out of the conviction of the defendants during the past summer of practising dentistry illegally.

Dr. Tabor Loses Suit.—In the United States Circuit Court recently the trial of a suit brought by Dr. Susan J. Tabor against the Norristown Insane Asylum to recover \$2,072.50 for professional services, resulted in a verdict for the defendant. For

a number of years Dr. Tabor had been employed at a salary of \$2,500, but at the election in January, 1901, she failed to get the appointment for the ensuing year. As she had already begun the year before being notified of the decision of the board, Dr. Tabor demanded remuneration for the entire year.

Smallpox Treated by Faith Curist.—There was recently discovered at 1436 Bainbridge street a case of smallpox of over two weeks' duration that had been treated only by a female faith curist. The man was hurried to the Municipal Hospital, where he died soon after admission. When vaccine physicians were sent to vaccinate the people in the neighborhood they were mobbed by the sect living there, the members being opposed to vaccination. The quarantine officers were obliged to aid the physicians and some of the quarantined parties escaped. The sect living in that locality numbers about 800 people.

Horticulture for the Insane.—It is stated that Director Martin has sent several thousand plants from his farm to the Philadelphia Hospital, where they will be given over to the care of the mildly insane of the Almshouse. An appeal has been made for flowers and plants to help further the plan. The plants are to be set out in the hospital grounds where they will furnish recreation and employment for a considerable number of the inmates. Hot-house flowers will also be furnished.

Annex for Rush Hospital.—The Board of Trustees of the Rush Hospital for the Treatment of Consumptives has approved plans for a new hospital building at Lancaster avenue and Thirty-third street. The annex will have rooms for 40 patients, the present capacity of the institution. The State has appropriated \$20,000, one-fourth the amount needed, and the balance must be raised by subscription. Of the 40 patients treated in the country branch of the hospital at Malvern, since last April, 10 have returned to their former occupations, apparently cured.

For Shorter Study Hours.—The subcommittee of the Parents' Association of the School of Observation and Practice, which is endeavoring to have the number of hours of home study for public school children decreased, decided at a recent meeting to make a systematic investigation in order to obtain definite information on which to base the movement. A man will be employed for one week to visit parents, especially those of pupils in the high schools. The committee passed resolutions declaring that their investigations convinced them that the evils of excessive home study in the public schools are not due to the teachers but to the overcrowded curriculum they are required to teach. The school hours of the second grade have been reduced from four hours daily to that of three.

To Check School Infection.—The Committee on Hygiene of the Board of Education has accepted the offer of the Health Department to determine, in an experimental way, what can be done to check the spread of infectious diseases among school children. An inspector will be appointed for one of the schools, if the board approve the plan, and the question given a practical test. Director Martin would have the school department subjected to no expense in the matter, as the physicians and nurses would be furnished by the Department of Health.

Allegheny Faces Quarantine.—The City of Allegheny is in danger of being subjected to quarantine on account of the alarming condition as regards smallpox. The situation is such that the State Board of Health has notified the authorities that if

immediate steps to control smallpox are not put in force the entire 150,000 population will be put in strict quarantine. About six weeks ago smallpox conditions in the city reached such a point, through alleged inefficiency of the health officials, that it was necessary for the State Board to call a meeting of the business men of the city and notify them of the conditions and of what they might expect. The Superintendent of the Bureau of Health said that he lacked funds to carry out effective work and that \$15,000 were needed. The State appropriated \$25,000 but the proper control of smallpox has not yet been reached.

Municipal Hospital.—Director Martin has announced his intention to investigate the charges made by 25 employees, who recently quit the institution, regarding the food served them at the hospital and also the question of carelessness in the management. It is claimed that ambulances and drivers are not properly disinfected before going through the streets and that the food is not fit to eat. Assistant Director Sunderland states that there will be no investigation as the matter is settled. Regarding this apparent difference between the two authorities, the *Ledger* says editorially: "When Dr. Martin was appointed Director of the Department of Health, he was thoughtfully provided with an assistant familiar with the methods of the machine, to protect him from inconvenient mistakes. The usefulness of this arrangement is now apparent. Statements have been made regarding the conduct of the Municipal Hospital, which Dr. Martin proposes to investigate, declaring that if these statements are true the condition which they indicate is criminal. The Assistant Director, on the other hand, announces that 'there will be no investigation,' and that 'the matter is closed.' It is evident that both cannot be right. The question is, whether the Director or the Assistant Director represents the superior authority. Unless everybody has been much mistaken in Dr. Martin, the investigation will go on, irrespective of Mr. Sunderland, and the abuses that have come down from the old Administration will be corrected."

Dr. Wiley on Food Preservatives.—Dr. H. W. Wiley, Chief of the Bureau of Chemistry of the Department of Agriculture, who has been conducting experiments for the Government as to the effect of adulterated foods upon volunteer subjects, lectured before the Franklin Institute, Friday evening, October 23, on "Methods of Ascertaining the Effect of Preservatives Upon Digestion and Health." After giving a résumé of the methods used in the experiments, Dr. Wiley said among other things in closing: "Foods can be preserved for a reasonable length of time in most circumstances without resorting to any chemical preservative or added preservative of any kind. Simple sterilization, which can be applied to most foods, is the most effective and the least objectionable of all forms of food preservation, with the possible exception of cold storage. There may be occasions of emergency or exigency in which the use of a chemical preservative is rendered imperative. The short period over which such an emergency would extend would not seriously endanger the health of the consumer were he to eat food for a brief period containing any one of the principal preservatives in common use."

"It may be, further, a wise policy not to inaugurate prohibition against all preservatives, but it certainly is true that wherever for any reason a preservative must be used the package of food containing it should be clearly marked, so that the pur-

chaser and the consumer may be fully informed regarding the matter."

Methods of Cleaning That Scatter Disease.—In an open letter to the *Public Ledger* under date of October 17, Dr. Howard A. Kelly, of Baltimore, calls attention to the common practice of dust-raising during efforts at cleaning streets, street-cars, waiting-rooms, railway cars, etc. The text for the letter was a personal experience in Harrisburg recently, where he was awakened from a doze in the waiting-room of the station by a cloud of dust raised by an employe who was sweeping the floor. As a result of the inhaled dust there developed a cold which incapacitated him from work for several days. From Dr. Kelly's admirable and timely letter the following extracts are taken: "My object in writing this letter is to enlist the entire medical profession as a committee on the whole to expostulate in strong terms, to insist, to write vigorous letters to the daily papers if need be, or even perchance to be almost ready to resort to personal violence to put a stop to such atrocious practices. Let me ask this pertinent question: What right have you or I, my medical brother, to be longing for the dawn of a new era in medicine when we shall be in possession of a toxin for every disease; for tuberculosis and for kindred ailments, so long as we fail to utilize the far better and simpler efficient methods of preventing disease which we already have at hand; when, for example, such a city as Philadelphia, once noted for its cleanliness, becomes conspicuous for its filthy streets; when in our homes, in our streets, in our public places, that most modest of all virtues, cleanliness, holding in her beneficent hands a reduction of the morbidity and of the mortality of so many of the scourges of our modern 'civilization,' to a point far below 50 per cent. of its ratio, when cleanliness, I say, is unknown? Must we have magic to please our people? Must the remedy be a poison manufactured in a dramatic way and injected into the veins of the disease-stricken patient, in order to arouse our languid interest? We put the whole noble army of bacteriologists to utter blushing shame when, as a result of all their arduous labors, they give us such a preciously simple remedy, when, after having explained the causes of many of our most frightful diseases in a manner so simple that a child in a kindergarten can both understand the method of invasion and apply the remedy; we shame them, I say, when, after having thus done all the most sanguine imagination could have proposed, we dumbly plod along the same old dusty, dirty road, waiting to crown the discoverer of an antitoxin. A distinguished President of one of our great universities told me some ten years ago that he had joined an association known as 'the kicking society,' the members of which were obliged to object every time they saw gross violations of the law and injustice done. Let us constitute then a kicking society from Maine to California, and insist on clean streets, clean houses, clean public buildings, and clean cars. Let it be recognized as a grave offense and an insult to force a neighbor to inhale myriads of pathogenic germs. The primary inviolable right of every man is to pure air and pure water and sunlight when the sun is shining. See, my brethren, that he is not robbed of his rights."

The National Association for the Study of Epilepsy and the Care and Treatment of Epileptics.—This association will hold its third annual meeting in the College of Physicians, corner Thirteenth and Locust streets, Philadelphia, on November 5, 1903. The first session will begin promptly at half-past

two in the afternoon, the second at eight o'clock the same evening. The association has no membership dues. Any one interested in charitable work may become a member on application to the President, the Chairman of the Executive Committee, or to the Secretary. The following program has been arranged: Presidential Address, Wharton Sinkler, M.D.; The Early Diagnosis of Epilepsy from Diseases Causing Epileptiform Convulsions, Charles K. Mills, M.D.; Some Considerations Regarding the Surgical Treatment of Epilepsy, J. Chalmers DaCosta, M.D.; The Treatment of Epileptics in Private Practice, Wm. N. Bullard, M.D.; A Treatment Room for Epilepsy and Some of its Results, Everett Flood, M.D.; Report of a Case of Removal of the Ovaries and Tubes for Epilepsy, A. H. Halberstadt, M.D.; Report of Cases of Trephining for Epilepsy, John C. Munro, M.D.; Some Remarks on Animal Epilepsy, L. Pierce Clark, M.D.; The Case of Millard Lee, E. J. Spratling, M.D.; Progress of the New Jersey Village for Epileptics at Skillman, N. J., H. M. Weeks, M.D.; The Psychological Aspects of Epilepsy, Wm. P. Spratling, M.D.; The Consideration of the Epileptic State by the Courts, John B. Chapin, M.D.

Alvarenga Prize of the College of Physicians of Philadelphia.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about \$180, will be made on July 14, 1904, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the Secretary of the College on or before May 1, 1904. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award. The Alvarenga prize for 1903 has been awarded to Dr. William S. Carter, of Galveston, Texas, for his essay entitled: "The Relation of the Parathyroids to the Thyroid Glands."

CHICAGO.

Public Health Matters.—A wellnigh incredible decrease in the deaths and the death rates of the two most dreaded diseases of childhood was demonstrated during the week. Briefly stated, the records for sixteen years show that there were 2,152 deaths reported from scarlet fever during the eight years, 1887 to 1894 inclusive, while there were but 1,648 such deaths reported during the last eight years, 1895 to 1902 inclusive. In the first period there were 11,251 deaths from diphtheria and croup; in the second period only 7,093. The average yearly population of the first period was 1,050,000; of the second period it was 1,610,000, or 53.3 per cent. greater. In proportion to the increased population, the scarlet fever deaths decreased exactly 50 per cent., and the diphtheria and croup deaths decreased 59 per cent. Had the same mortality rate per 10,000 of population obtained from scarlet fever during the last eight years that did during the first eight years there would have been 4,121 deaths from this disease, instead of the 1,648 actually reported, a reduction of 2,473 in the number of scarlet fever deaths. Had

the same diphtheria mortality rate obtained during the second period that did during the first there would have been 21,461 diphtheria deaths, instead of the 7,093 actually reported during the last eight years, a reduction of 17,368 in the number of deaths from diphtheria and a total constructive saving of nearly 20,000 lives from these two diseases alone. The greater decrease of diphtheria mortality is due, of course, to the antitoxin treatment of the disease.

Twenty-fifth Anniversary of Chicago Gynecological Society.—This Society held a banquet, October 16, in commemoration of the twenty-fifth anniversary of its foundation. Dr. J. Henry Carstens, of Detroit, delivered an address, and reminiscent remarks were made by several members. Election of officers for the ensuing year resulted as follows: President, Dr. Emil Ries; Vice-Presidents, Drs. Joseph B. DeLee and Frank T. Andrews; Secretary, Dr. Palmer Findley, and Treasurer, Dr. Chas. B. Reed; Pathologist, Dr. Gustav Kolischer, and Editor, Dr. Rudolph W. Holmes.

Xeroderma Pigmentosum.—At a meeting of the Chicago Medical Society, held October 14, 1903, Dr. James Nevins Hyde showed three cases of this disease. The three children are a brother and two sisters of one family. Three boys, born first, are perfectly well, then these three children, and two others who are perfectly well. The infant, about one year old, was stripped and examined by him two days ago, without exhibiting the slightest evidence of the disease. The disease is uniform in its appearance, and the three cases illustrated perfect types of the affection. There is not a single symptom of the disease which is not seen in other cases. A peculiarity of these cases is the complexus of symptoms at an early age, and these can be readily grouped into four tolerably distinct categories, although there are authors who add several others. These others he believes to be sequences of the original primary lesions. (1) Pigmentation or freckling is very distinctly marked, mostly on the exposed surfaces of the body, face, hands, forearms, upper chest, and in some cases in the lower extremities and dorsum of the feet, varying from a light fawn to a deep chocolate color, deepening with years. Sometimes there are indistinct isolated freckles or pigmentations; in other cases confluent, forming spaces without very distinct circumscription. (2) Whitish spots, maculae, which are atrophic in character. These symptoms precede the freckling, and sometimes follow. The white spots are most conspicuous usually upon the exposed surfaces of the body, usually about the orbits and other portions of the face, but they are also visible in other regions. The maculations are smooth, whitish, slightly wrinkled, atrophic, and in some cases contract so as to produce a cicatricial contracture. (3) Telangiectases, minute blood-vessels developing in the skin. (4) The formation in different parts of the body, on the hands, face, and elsewhere, of nodes, nodules, warts, as they are sometimes called, practically epithelioma, so much so that the disease has been described as distinctly from the beginning precocious epitheliomatosis of the skin. All the other symptoms of the disease described by authors, in his judgment, are secondary to those he had outlined under the four heads given. They are ulceration, breaking-down of the warty growths, crusting, cicatrization following the ulceration, and in some cases the formation of a distinct epithelioma from the cicatrix. Sometimes there is a verrucous desquamation of the scalp. The etiology is obscure. The prognosis in all of these cases is grave. A few cases have been seen where the

disease seemed to have been arrested for six, eight or more years. Most of these cases develop at the close of the first year of life. These cases developed at about that time. The earliest period on record at which the disease has developed is between the third and fifth months. A few cases have occurred in people of seventy and ninety years of age, but one must accept such statements with reserve. Light-colored hair is a conspicuous feature. These patients have no lighter hair than those who are affected with the disease.

Syphilis of the Heart and Aorta.—Dr. Robert H. Babcock read a paper on this subject before the Chicago Medical Society, October 14. He said our knowledge of the pathological changes which take place in the heart as a result of syphilis is of comparatively recent date. The first authentic case of the kind was one of gumma and endocardial thickening, published by Ricord in 1845. This was followed by a similar one by Lebert four years later, after which a gap of eight years ensued, and then, in 1858, a case was recorded by Virchow. This famous pathologist then pointed out for the first time that sclerotic changes might be produced by luetic infection. It was about this time or a little later that Fournier began to direct attention to syphilitic manifestations as seen in the central nervous system, and their great clinical importance. The following ten or fifteen years witnessed a great awakening to the fact that this disease does not spare the nervous and circulatory apparatus, as had previously been supposed. Numerous examples of cardiac syphilis were reported by observers on the Continent and in England. These cases were the accidental discovery at the deadhouse, and it was not until late in the seventies that the clinical manifestations of cardiac syphilis began to be recognized and published. The first elaborate monograph on syphilis of the cardiac structures was from the pen of Lang, in 1889, and in 1893 Mracek published another exhaustive paper in which were collected a hundred cases out of the literature, so that, as remarked by Runeberg in his recent excellent contribution to this subject, it appears that the actual number of recorded cases had not been so few as was supposed. Since the appearance of these papers, clinicians have not left the observation of cases to the pathologists, but have been reporting a steadily increasing number of observations, until now cardiac syphilis can no longer be said to belong to the great rarities of medicine. Dr. Babcock then discussed the morbid anatomy, symptoms, diagnosis, prognosis, and therapy of cardiac syphilis. Therapeutics should not be omitted, but when cardiac incompetence is present, such medication should also be combined with other measures generally recognized as appropriate to such symptoms, namely, rest, digitalis, strychnine, nitroglycerin, cathartics, etc., as indicated. Experience teaches that without mercury and iodides such tonic and depleting measures are of doubtful value, and in no wise curative, but if no improvement follows the prolonged and energetic use of specific remedies, then reliance must be placed on the so-called heart tonics alone, and particularly on such rules for conduct as will conserve cardiac power and protect the organ from injurious strain.

The Early Diagnosis of Typhoid Fever.—At a meeting of the Chicago Medical Society, held October 21, 1903, Dr. Edward F. Wells read a paper on this subject, in which he said that the early diagnosis of typhoid fever was of prime importance to the patient, the community and the physician, for various and obvious reasons. The patient's con-

venience, comfort and safety were notably increased. His business and social engagements, as well as those of his dependents, superiors or associates, might require more or less radical modification. The community was deeply concerned because the typhoid patient was a source of danger to others, near and distant, and proper communal prophylactic measures should be instituted at the earliest possible moment. The physician's usefulness was enhanced by early diagnosis, because thereupon must be based an enlightened therapeutics. These facts ascertained, generally, to military, naval and institutional, and especially to private practice. The present status of this problem was markedly different from that which was presented a generation ago, and he was not sure that it had been simplified, or its solution made easier. For example: It would not be gainsaid by any practitioner of medicine whose experience had compassed or exceeded the past quarter of a century that a marked change had come over the clinical picture of typhoid fever. Twenty-five or thirty years ago, it was, as a rule, a severe, prostrating disease, with delirium, coma vigil, paresis of many of the reflexes, a duration of about four weeks, and a prolonged convalescence. Now all these features are, in the average case, moderated. The malady was less severe, less prostrating and less dangerous than before, but it must be said, however, that in these particulars the malady varied from year to year. It was apparent that diagnosis was assisted by a clear-cut and accentuated symptomatology, whereas it hesitated in the presence of indefinite symptoms. Several comparatively recently established diagnostic aids which rendered such assistance that we probably now obtained, with increased labor and difficulty as early and reliable results as were formerly obtained by less laborious methods. In the early diagnosis of typhoid fever primary place should be accorded a consideration of those clinical features which have the greatest diagnostic significance. Due weight should be given to the previous environment of the patient; his medical history; prodromata; the mode of onset of the attack; the symptoms presented. The onset of the disease was usually so insidious that the patient could only indefinitely date the beginning of his illness, and when he once took cognizance of his condition, a number of symptoms were already markedly present. Although such an advent was the rule, yet a sudden onset was not rare. In attempting the early diagnosis of typhoid fever we should bring to our assistance every diagnostic device at our command; especially should we practice blood and urinary examinations. The urine should be examined daily, and this examination should include particularly the absolute and differential leucocyte counts. In uncomplicated typhoid fever, the leucocytes were normal, more or less markedly decreased or, rarely, very slightly increased in number. In regard to the Widal reaction, in it we have one of the most valuable as well as most spectacular of the advances of modern medicine. It usually appeared during the second week, rarely at the end of the first week, and when found it pointed strongly, if not directly, to either a present or past typhoid fever. It should be remembered that the agglutinating properties in the serum remained for many years, or permanently, after an attack of typhoid fever, so that in the absence of an authentic medical history, it might be actually misleading in the doubtful cases. However, with supplemental cultural observations, this fallacy might be guarded against. Typhoid fever must most frequently be differentiated from influenza, malaria,

cerebrospinal meningitis, acute tuberculosis, sub-acute appendicitis, paratyphoid fevers, and indefinite intestinal infections. Typhoid fever, like cases of influenza, might be recognized by the presence of the influenza bacillus in the nasal and other respiratory secretions; the rapidity of the pulse; the absence of typhoid bacilli, indican, and the diazo-reaction in the urine; the absence of splenic tumor; the absence of a gradual diminution of polynuclear, with a corresponding increase of the mononuclear, leucocytes; the absence of typhoid bacilli in the blood, and absence of the Widal reaction. In like manner, by applying to the case the specific diagnostic features which apply to malaria, cerebrospinal meningitis, acute tuberculosis, subacute appendicitis, and denoting the absence of those which belong to typhoid fever cases, these maladies might be placed in their proper nosological place.

GENERAL.

Proposed Pure Food Law.—The Association of Manufacturers and Distributors of Food Products of the United States held its quarterly meeting recently in the Manhattan Hotel. The association, which is composed of 36 of the largest manufacturers of jams, preserves, and table condiments in the country, is interested chiefly at present in securing the passage of a National pure-food law at the coming session of Congress, and the meeting was devoted to outlining plans for the work before Congress this fall. The bill which will be urged will provide for free inter-State commerce in food products which conform to a certain standard of purity.

The Journal of Infectious Diseases.—This is a new journal to be devoted to the publication of original investigations dealing with the general phenomena, causation, and prevention of infectious diseases both of known and of unknown origin. It is the aim of the journal to occupy a special field and to include only such contributions as bear with reasonable directness upon the topics indicated in the title. The biology and chemistry of the various pathogenic micro-organisms, the physiology and anatomy of the morbid processes that they initiate, and the hygienic and sanitary problems to which they give rise are considered to be especially within the scope of the undertaking. Particular attention will be given to prompt publication, and to facilitate this object numbers will be issued at irregular intervals as rapidly as the amount and nature of the available material permit. Each volume will contain a minimum of 500 pages, and it is expected that at least one volume will be issued annually. One hundred reprints will be furnished free of cost to contributors. The *Journal of Infectious Diseases* has been established in connection with the Memorial Institute for Infectious Diseases, by the munificence of Mr. and Mrs. Harold F. McCormick, and will be conducted under conditions that insure its permanence as well as the adequate presentation of the material submitted for publication.

The first number of the journal will appear January 1, 1904. All communications should be sent to the *Journal of Infectious Diseases*, Chicago, Illinois. Subscription price, \$5.00 per volume.

Women at Tufts Medical School.—According to the statistics of the professional schools, at Tufts College there is a steady increase in the number of women taking up medicine. The entering class numbers 150, of whom about 20 are women. The school now has 465 students on register, and is the largest of its kind in New England. The dental school has an entering class of 56. By the recent acquisition

of the Stearns estate Tufts becomes the sixteenth largest endowed college or university in the country, having funds in its possession for over \$2,225,000.

Louisiana Quarantines Against Texas Towns.—A proclamation of quarantine has been issued by the Louisiana State Board of Health against Laredo and San Antonio, Texas, and all railroads and other common carriers were prohibited under penalty from bringing into Louisiana passengers, household goods, and cars from those places unless they are first fumigated with sulphur by authorized health authorities.

The board also approved the action of the President, who, on Thursday forbade the sale of tickets from San Antonio to Louisiana points.

In order to guard against any danger, Dr. Souchon called representatives of the Texas railroads into conference and told them of the order. He sent for the Health Officer of Houston, and told him Louisiana would not quarantine against Houston provided Houston would institute a quarantine of its own against infected points which would be thoroughly satisfactory to the board.

This the Houston health officer promised. To make assurance doubly sure, Dr. Souchon has sent inspectors to Houston to watch developments. Another will be placed at Beaumont, and three are near Shreveport.

Hematological Notes.—Writers on hematological topics are requested to send two reprints of their papers or two numbers of the respective journals to the undersigned for purposes of review in the *Folia Hematologica*. In the place of reprints, authors' abstracts will also be received. These can be published immediately after or coincidentally with the appearance of the original.—Charles E. Simon, M.D., American editor of the *Folia Hematologica*, Baltimore, Md.

Titles for Navy Doctors.—If the recommendations of Surgeon General Rixey of the Navy are carried out there will be a new set of titles to be memorized by the American who keeps in touch with the United Service. The medical arm of the navy has become dissatisfied with the mere professional titles by which various officers are designated, and has brought pressure to bear to have dignity added to its members. Surgeon General Rixey in his annual report therefore recommends: "That Congressional action be asked for authority to rename the different grades of the medical corps now existing as follows: In place of Surgeon General, Surgeon Admiral; and in the other grades, Medical Director to become Surgeon Captain; Medical Inspector, Surgeon Commander; Surgeon, Surgeon Lieutenant Commander; Passed Assistant Surgeon, Surgeon Lieutenant, and Assistant Surgeon, Surgeon Lieutenant (junior grade)." Attention is also drawn to the need of better hospital and receiving ship accommodations for the navy, of a dental corps and two additional hospital ships. Surgeon General Rixey also deems it important that the medical corps should be represented on the General Board of the navy.

New York Orthopedic Dispensary and Hospital.

—The trustees of the New York Orthopedic Dispensary and Hospital Announce that the Surgeon-in-Chief, Dr. Russell A. Hibbs, will give a course of clinical lectures on orthopedic surgery at the institution, on Tuesday and Thursday afternoons, at 4 o'clock, from November 10 to December 15 (both inclusive). The course will be free to the medical profession and students. No lecture will be given Thursday, November 26.

French Hospitals for Consumptives.—The investigations of the hospitals for the treatment of tuberculous diseases were made in France, which, Mr. J. S. Ward, Jr., writes, are in advance of all other countries in that respect. "Altogether in France," he says, "there are 4,443 beds for tuberculous children. In Paris every year there are about 12,000 deaths from tuberculosis, of which 2,000 are children. In New York, while the total number of deaths is smaller, the proportion is about the same. Last year there were 9,389 deaths, of which 1,184 were children. There are now approximately 4,000 children in this city suffering from some form of the disease, and of this number 3,000 live in tenements. Paris supports two hospitals for the care of tuberculous children. One is at Berck-sur-Mer, not far from the city, and the other at Hendaye, on the Bay of Biscay, near the Spanish border. Both of these are primarily for the treatment of tuberculosis of the bones, as in France physicians now generally believe that the sea air is not beneficial to those suffering from lung diseases. No pulmonary cases are being treated at Berck, but at Hendaye, on account of its warm climate, there are a few pulmonary patients. Berck is one of the best known of French hospitals. It was founded in 1861, has grown up to cover a large amount of land, and contains 750 beds, all of which are now occupied. A nominal charge is made, and it costs for the support of each patient 2f. 25c., or about 45 cents a day. That includes light, heat, medicines, food, wages, all incidentals, and the cost of transporting the children to and from Paris. The patients vary in age from three to fifteen years, and the average period of their stay is one year, although some are there for only three months and others as long as three years. An average of about 29 per cent. are discharged as cured. The most instructive hospital which Mr. Ward visited, from the point of view that it could best serve as a model for a similar institution here, was that at Ormeson, near Paris, a hospital for the treatment of children afflicted with pulmonary tuberculosis. Connected with Ormeson, which is solely for boys from three to ten years of age, is a larger institution at Villier-sur-Marne for the cure of boys from ten to sixteen years of age, and the hospital at Noisy for girls. These three hospitals, which are situated within a short distance of one another, are all for pulmonary tuberculosis, and are supported by the French charitable organization known as L'Oeuvre des enfants tuberculeux. Mr. Ward is of the opinion that the most desirable site for the proposed hospital would be at Coney Island, where the association now supports a seaside home for children. A hospital modeled somewhat on the lines of Ormeson and containing 100 beds, Mr. Ward thinks, could be built for \$100,000, that amount to include also the cost of the land.

Another Croaker.—Prof. Karl Pearson of the Anthropological Institute took as the subject for his Huxley memorial lecture the inheritance in man of the mental and moral characters and its comparison with the inheritance of physical characters. The professor, looking dispassionately from the calm atmosphere of anthropology, said he feared there was really a lack of leaders of the highest intelligence in science, the arts, trade and even politics. In Great Britain he saw a want of intelligence in the British merchant, professional man and workman. There was a paucity of more intelligent men to guide those of moderate intelligence. The mentally better stock, he said, was not reproducing itself at the same rate as formerly. He continued: "We are standing at the commencement of an epoch which is marked by a great dearth of ability. The remedy lies beyond the reach of revised education systems. It is necessary that psychical characters should not be manufactured by the home, the school or the college, but

should be bred in the bone. For the last forty years the intellectual classes have ceased to give the nation a due proportion of good men."

Obituary.—Maurice Fieschor Pilgrim, A.B., M.D., was born on October 26, 1857, and died Sunday, October 18, 1903, at his home, 407 West Fifty-seventh street, New York City, after a brief illness of pneumonia. Dr. Pilgrim was a native of New Jersey. He received his degree of M.D. in 1884 and at once entered general practice, deciding at the end of his second year's work to discontinue his general practice, and devote his energies to the treatment of the eye, ear, nose and throat. He spent the following year abroad, entering one of the large hospitals in London in order to more fully equip himself for this line of work. Returning to this country he began the practice of his specialty in Boston, Mass. Being a man of advanced ideas, and realizing early in his career, the value of physical measures in the treatment of disease, he became a warm advocate of electricity. He discovered and exploited the beneficial effects of galvanism in the treatment of glaucoma and wrote quite extensively on this subject. He was among the first in the profession to call attention to the dangers of the X-ray in the treatment of cancer. Dr. Pilgrim was a prominent member of the American Electro-Therapeutic Association, having held the high office of first Vice-President, and was, at the time of his death, chairman of the Executive Council of that Association, a position previously eligible only to ex-Presidents of the Association. In the latter part of September, 1902, his attention was drawn to the new therapy, Mechanical Vibratory Stimulation, which was just beginning to attract the attention of the profession. Realizing the remarkable possibility of this new line of work and the prompt results which usually followed its proper application, he at once began investigation and the last year of his life was devoted exclusively to placing this science before the profession, having written quite extensively for the medical press, and his book on Vibratory Stimulation is to-day the only authority extant on this subject. Dr. Pilgrim was held in high esteem as a writer and advanced thinker, and was quite prominent as a writer on Psychological subjects, having held the Chair of Psychiatry in the New York School of Physical Therapeutics, and was editor of the Department of Psychiatry in the *Journal of Advanced Therapeutics* at the time of his death.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, October 17, 1903.

THE KING AND SIR FREDERICK TREVES—OPENING OF THE MEDICAL SCHOOLS.

THE King's health has again been the subject of disquieting reports. It was said that symptoms of fresh abdominal trouble had manifested themselves, that the surgeons were holding themselves in readiness, and that another operation was imminent. The reports, as it turned out, had no more solid foundation than the fact that the *Court Circular*, an organ which chronicles the doings of the royal family down to the "small beer" of their exalted lives, announced that Sir Frederick Treves was on a visit to the King at Balmoral. The fact that this circumstance should have been taken to mean that there was some ground for fear about His Majesty's

health throws an instructive light on the social position which the medical profession holds in the eyes of the people of this country. It is evidently assumed that the King would not ask even the most distinguished surgeon of his realm to be his guest unless he had occasion for his professional services. To do the King justice, there is no room for the shadow of a suspicion that any motive of the kind underlay the courtesy which he extended to Sir Frederick Treves. He is naturally grateful to the man to whom he owes his life, and he treats him as a friend for whom he has a special regard, and on whose judgment he relies in matters altogether outside the province of the healing art. That no surgical emergency is considered likely to arise is shown by the fact that Treves is making use of his new found liberty from the toils of professional life in a voyage round the world, on which he has just started. It is still, notwithstanding his emphatic denials, persistently stated that he will enter on a political career on his return. I do not look upon this as probable, because it would involve his giving up his work as a member of the Advisory Board of the Army Medical Service, in which he takes the keenest interest. In any case it seems certain that he is lost to surgery.

The twelve medical schools in the possession of which this privileged metropolis rejoices opened their gates again after the summer recess at the beginning of the present month. I have not yet seen the statistics of the entries at each school, but it is becoming manifest that the importance of London as a teaching center in the world of medicine is gradually decreasing. This is due to the multiplication of Universities in the provinces and to the continued failure of the University of London to adapt itself to the needs of ordinary students of medicine. The standard of its examinations places its degrees beyond the reach of any but persons of exceptional ability who can afford a longer and more costly curriculum of study than the average parent or guardian is prepared to sanction. As a teaching body the university is still in an early stage of embryonic life. A few courses on the more abstruse parts of physiology and other ancillary subjects are given to advanced students. Apart from these, however, the whole work of teaching is done in the schools attached to the various hospitals, which are now, though severally autonomous, organic parts of the university. The waste of power caused by the distribution of the teaching of the sciences which form the basis of medicine among so many rival bodies is incalculable. This was pointed out more than thirty years ago by Huxley, but "vested interests" and jealousies of one kind or another have hitherto prevented the fusion of the hospital schools into one or perhaps two great university institutes in which anatomy, physiology, chemistry and so forth should be taught by first-rate men paid on a scale sufficiently liberal to induce them to give their life to the work of their chairs. That this consummation will be arrived at some time may be looked upon as certain. At present several of the hospital schools are tottering on the verge of bankruptcy. So dire are the financial straits to which three or four are reduced that they cannot pay their teaching staff more than the merest pittance. One or two of them have to be subvented from the funds of the hospital proper, a state of things which gives occasion to the heathen to blaspheme by saying that the money subscribed by the public for the relief of the sick poor is diverted to the furtherance of vivisection. The staff of at least one hospital, besides forfeiting their fees, have actually to put their hands in their pockets to keep the school going. At one or two hospitals which only a few years ago used to attract a considerable number of students, it is now found difficult to get enough men to hold the minor appointments. Having regard only

to the higher interests of medical education, the sooner the hospital schools are absorbed into the infinite the better. London can never become the great medical center which it ought to be until it has a real living teaching university that will provide scientific training for students, leaving them to find their clinical teaching at one or other of the hospitals.

SOCIETY PROCEEDINGS.

NEW YORK STATE MEDICAL ASSOCIATION.

Twentieth Annual Meeting, held at the Academy of Medicine, New York City, October 19, 20, 21, and 22, 1903.

(Continued from Page 816.)

Serum Treatment.—Horses can be inoculated with Shiga's bacillus and with several types of these acid-fermenting bacilli and thus be made to produce a serum which is curative for the pathological conditions produced by these various micro-organisms. During last summer some experience in these cases and their treatment by serum was secured by the New York Board of Health. About 50 cases were under observation. About one-half of these were treated by serum. Some of the mild cases did not seem to be much improved by this method of treatment, though none of them became worse. Bad cases treated with serum apparently did better than corresponding cases treated without serum.

Laboratory and Clinic.—Dr. William P. Northrup said that it is extremely encouraging for the clinician to find that the laboratory workers are approaching a definite conclusion on this important subject of dysentery. To him it seems impossible at the present time to account for all the differences which occur in the pathological conditions found in the intestines of children who have died from dysentery on any common ground. It is possible, however, that as in the case of diphtheria the resistive vitality and the special virulence of the micro-organism, may account for all the clinical differences. It is to be hoped that the serum treatment will prove as effective in this as in diphtheria. Dr. Northrup thought it impossible ever to be enthusiastic about diphtheria serum and hopes against hope to be enthusiastic before long about dysentery serum.

Order out of Chaos.—Dr. Charles G. Kerley said that the bacteriologists have at last got order out of the chaos of the bacteriology of the intestinal tract. The important feature of modern progress for the physician is that the contents of the intestine are primarily infected and not the mucous membrane. The principle of treatment remains the same, to clear out the intestines and make the infantile digestive tract an unfavorable nidus for bacterial growth. Dysentery has not as yet proved its value, but there is apparently a future for it.

Radium and Medicine.—Dr. Samuel G. Tracy, of New York, exhibited specimens of radium of various strengths and discussed the possibilities of its application to medicine. It has already been used with apparently good success for the treatment of lupus and superficial epitheliomata. It has also been used with some success for the treatment of certain eye conditions and there is some hope that it may revolutionize ocular therapeutics for deep-seated conditions. The inhalation of gas, which has been allowed to pass through the water of a wash bottle in which radium is contained, carries into the lungs particles which have for the moment acquired radiant power and that may act upon the pulmonary tissues. This treatment for tuberculosis is now under discussion.

Postoperative Elevations of Temperature.—Dr. Martin B. Tinker, of Clifton Springs, N. Y., said that when elevations of temperature occur after operation the surgeon's first thought must be as to the condition of the wound. If this is good, a careful physical examination of all the internal organs must be made, and for this consultation with a good internist, whose opinion can be depended upon, is a source of great satisfaction. The principal causes of rise of temperature are small pulmonary emboli, phlebitis and thrombosis of vessels, pneumonia, bronchitis and malaria. Some authorities say that most of the pneumonias which occur after operations are embolic in origin; rather than due to the aspiration of irritant material into the lungs. It is not improbable, however, that in many cases both causes are at work. In pulmonary emboli the fever is not very high, is not accompanied by rigors and is not sudden in its rise. It is usually remittent, though at times intermittent. It occurs more especially after abdominal operations and especially those done for the radical cure of hernia. Often in these cases the wound will be found healed per primam, showing that infection had nothing to do with the respiratory condition.

Thrombosis.—Rises of temperature from thrombosis, are not infrequent and represent some of the otherwise unexplainable rises of temperature after operation. Pericarditis occurs occasionally and has, in Dr. Tinker's experience, been seen after the operation for the radical cure of hernia. Malaria is frequently a cause of rise of temperature. If patients have malaria in their histories, the possibility of their having harbored the plasmodium in their spleen for several years, until the disturbance of the system incident to operation invites it to come out, must not be forgotten.

SECOND DAY—TUESDAY, OCTOBER 20, 1903.

Alcoholism and Morphinism.—Dr. Alfred T. Livingston, of Jamestown, N. Y., discussed the various methods for the treatment of these conditions. The application of cold to the head and of a cold spray to the spine with galvanism of the cervical sympathetic, and the use of static electricity along the spine of the current's strength with a spark gap five to eight inches in length, usually quiets patients and does away with the necessity for the use of narcotics or hypnotics. Dry cupping over the whole spine, not with the old alcohol cups, but with valve cups emptied by an air pump, is also of use, and may be supplemented by the employment of skilled massage. These physical therapeutic methods will lessen the necessity for drugs.

Drug Treatment.—Dr. Livingston considers that the bowels must be kept free from irritating material and for this a mercurial purge followed by salines is the best. Abundant fluid should be supplied and attention paid so that the patient takes it. Most of the food should be given in the form of fluid, easily digested material being particularly employed. During acute stages of the symptoms produced by alcoholism or morphinism, the hypodermic injection of ergot is the best remedy. About half a dram of ergot should be given two or three times a day in milder cases, or in severer cases every two hours, or even every hour, if necessary. The solution of ergot employed should be of 12½-per-cent. strength, or in the form of Squibbs' new extract of ergot. After the severer symptoms have passed off special attention must be paid to the diet and to the patient's bowels. As a regular laxative in Dr. Livingston's experience, the fluid extract of *Rhamnus frangula* should be employed in doses of one or two drams at bed time.

Effect of Ergot.—The ergot immediately produces restfulness, and does away with the craving for any toxic material that has been taken before. A doctor patient recently under treatment for alcoholism asked

what under the sun was being given to him that took away his craving. There is no need to employ narcotics or hypnotics in extreme cases of morphinism, when as much as ten grains of morphine a day have been taken. A slight amount of the drug may be employed for the first two days. One-tenth of the usual daily amount, halved each day, until none is required.

Ergot in Alcoholism.—Dr. Alexander Lambert, of New York City, said that he had found ergot extremely useful in the treatment of alcoholism. In his yearly service of six weeks in the alcoholic wards he formerly had 25 to 30 deaths. He has employed ergot for the last two years, and has had respectively six and seven deaths. This includes all the patients admitted, though among them were one or two with fractured skulls, several who came in on the third day of pneumonia after a month's spree, and other unfavorably conditioned patients. In a common class of alcoholics those who come in in intense depression, sleep occurs almost at once after the administration of ergot, and some hypnotics, and when they awake appetite has returned and the craving for alcohol is practically gone.

Acute Alcoholism.—When patients come in in the full vigor of alcoholic stimulation they are given two drams of paraldehyde in an ounce of whisky, the ergot being administered at the same time. If they are not resting at the end of an hour the treatment is repeated. The narcotics work very well, if only morphine is kept away from the patient. In splenic alcoholism patients who come in looking for trouble, powerful longshoremen, furiously maniacal, a hypodermic of apomorphine is employed, a tenth of a grain being administered. This converts a raving maniac into the limpest kind of a specimen of humanity. He does not vomit, but becomes calm; can be rolled up in a blanket, and after being given ergot sleeps for several hours and wakes up ready for food.

Dosage of Ergot.—Those who have reported failures with the ergot treatment have probably not used sufficient amounts of the drug. In severe cases thirty minims of a 12½-per-cent. solution, as suggested by Dr. Livingston, are given hypodermically and repeated in an hour, and after that every two hours if the patient seems to need it. In the shaking alcoholism where delirium tremens seems about to break out, patients become quiet in six hours and pass on to convalescence.

Wet Brain.—In alcoholic wet brain the effect of ergot is most marked. Anyone familiar with alcoholic patients knows the rapidly exhausting condition with serous exudation into the brain tissues, which occurs in old chronic alcoholics and has up to this time been practically always fatal. Dr. Lambert has tried hot salines, hot and cold packs and felt satisfied if he saved three out of one hundred of these patients. To his utter astonishment, since employing ergot he practically never loses any of these patients. Of the last 30 such cases under treatment only two have died. It is evident that the ergot tightens up the cerebral vessels and prevents the exudation of serum which formerly caused intense brain edema and death. Of course, in all these cases it is necessary to clear out the bowels thoroughly, keep them open during the course of the treatment and push the food.

Morphinism.—In morphine cases ergot has been quite effective. At Bellevue the morphine maniacs are especially unfavorable for treatment. Most of them do not want to give up the habit, but are sent in by friends. The rule is not to cut off the morphine at once, but this is only because of the row which patients make if entirely deprived of the drug. No matter how much the patient has been taking, however, forty-eight hours is considered sufficient for the tapering-off process.

When ergot is administered it relieves the craving and the anguish that come over these patients quite as well as it does in alcoholism.

Dr. Wiggin said that in a limited way he has employed ergot for alcoholism in connection with his surgical work and has found it extremely useful. It especially relieves the insomnia of alcoholic patients who have been treated surgically. It must be given in good large doses, however. Dr. Wiggin employs a solution of one dram of the extract to an ounce of water, and gives one dram of the preparation thus made hypodermically.

Laboratory Aids to Diagnosis.—Dr. D. A. Robertson, of Brooklyn, N. Y., mentioned the various laboratory methods of diagnosis which of late years have come to the help of the clinician as auxiliaries in the differentiation of disease. The blood count, and in recent years particularly, the differential blood count, and the significance of leucocytosis as well as the recognition of degeneration of the red blood cells, as for example the basophylic granules in lead poisoning were discussed. The uses of the Widal reaction and of microscopic examinations for malaria were pointed out. In malaria the existence of the spasmodium absolutely decides the diagnostic question, but also is of great value as to the prognosis and is suggestive as to the method of treatment that should be employed. During the war with Spain the camp fevers would never have become so widely distributed as they did if the Widal reaction and microscopic examinations of the blood had been the rule. There would have been no confusion of typhoid and malaria, nor any question of the existence of a combination of the two. In diphtheria bacteriological diagnosis is of the greatest possible service.

Inconveniences of Laboratory Diagnosis.—In discussing Dr. Robertson's paper, Dr. E. V. Delphey, of New York City, said that laboratory diagnosis is not without its disadvantages unless constantly controlled by the clinical diagnosis. Not long since he had a case of diphtheria in which the clinical symptoms apparently were not those of true diphtheria. The Board of Health declared it to be diphtheria, however, but on protest after some time, acknowledged that there were no diphtheria bacilli then present in the mouth. A laboratory diagnosis made for intensity of virulence on a specimen taken almost at the same time, however, showed intensely virulent diphtheria bacilli present, and so announced from the official station. It is evident that there is more than one loophole through which laboratory diagnosis may fail.

Dr. Robertson, in closing the discussion, said that the laboratory diagnosis needs always to be controlled by the clinical symptoms.

Treatment of Puerperal Infection.—Dr. J. H. Burtenshaw, of New York, said that in no essential way does puerperal infection differ in its nature or onset from sepsis following a surgical operation. Reduced to few words, the treatment should aim (1) to remove the source of infection; (2) to neutralize the effects of the septic germs or of their toxins; (3) to support the patient's vitality. He believes curettage of the septic uterus with a sharp instrument to be unjustifiable, but recommends that retained secundines be removed by means of a finger or, under certain circumstances, with a dull wire curette. Every care should be taken not to wound the endometrium. Lacerations of the cervix and vagina should be cauterized. The cavity of the uterus should then be irrigated with two gallons or more of warm salt solution, or one-per-cent. lysol solution. Both cavities should then be packed with 10-per-cent. iodoform gauze. He has never obtained as satisfactory results from the use of vaginal or uterine tampons soaked in formalin or alcohol. He does not

favor continuous irrigation of the uterine cavity in cases of infection, as the pathogenic organisms are lodged beyond the granulation wall. In sapremia such irrigation may be of benefit. He does not approve of hysterectomy in these cases, as, if operation is performed sufficiently early to insure a good result, one can never be certain that the operation was absolutely necessary.

Neutralization of Toxins.—To neutralize the effects of the germ invasion he believes in promoting bowel and kidney functions to begin with. The administration of antistreptococcic serum has been disappointing, as has the intravenous use of formalin solution. Opening and packing of the posterior cul-de-sac with iodoform gauze was commended. Considerable stress was laid on the good effects obtained from the use of normal salt solution. It is still a mooted question as to the manner in which the solution exerts a favorable influence, but the term *lavage du sang* would appear to be particularly significant in this connection. With the use of unguentum Credé and collargolum the speaker's experience has been limited, but very good results have been reported by many observers from their employment.

Supporting Measures.—To support the patient's vitality he advises that her diet be nutritious to the last degree, but of such nature that the tax put upon the digestive system is reduced to a minimum. He believes strongly in the administration of brandy or whisky in liberal doses, not only for their stimulating effects, but as a food. Ergot, strychnine, and quinine are always indicated. During the past year he has also prescribed a French wine, said to contain seven-tenths of a grain of iodine to each tablespoonful, apparently with great benefit. Temperature should always be controlled by means of cold sponging, and never by antipyretic drugs.

Diagnosis of Gall-stones.—Dr. Irving S. Haynes, of New York City, said that when the classical symptoms, as given in the text-books, of gall-stones are present, the condition has already progressed to a point where the patient is surrounded by many dangers. Certainly it is unjustifiable now to wait for biliary colic and jaundice. Gall-stones are to be diagnosed at a time when the only symptoms present are those of vague indigestion with dull pain in the right upper abdomen, a point of tenderness over the cartilage of the ninth rib with slight yellowness occurring occasionally, especially in a patient in whom there is a previous history of typhoid fever. Jaundice especially must not be waited for as a pathognomonic sign. In 75 per cent. of Ochsner's cases and in over 80 per cent. of Kehr's cases there was no icterus. It must not be forgotten that icterus may occur when there is no stone present from simple catarrhal inflammation from conditions in the duodenum.

Differential Diagnosis.—This is even more difficult than has been thought, as there is no pathognomonic sign. The X-rays fail to give positive information in many cases. A previous attack of gastralgia is not an unusual feature of the history and points to the fact that there has been pain in the biliary region referred to the stomach. Not infrequently this pain gives rise to vomiting, and so the diagnosis of gastritis is made. In 80 per cent. of Ochsner's cases the patient had previously been treated for gastritis. When stone is present in the gall-bladder acute infection of the biliary passages is not uncommon, and causes a rapid rise of temperature, followed by a rapid fall. What Murphy calls the hepatic angle of temperature, as indicating biliary infection, may thus be of service. It must not be forgotten that when gall-stones are present a patient may suddenly become critically ill at almost any time. The

unwisdom of delay then is manifest and putting off operation only piles up pathological complications that render eventual surgical treatment much more difficult.

Treatment.—The ideal treatment of biliary conditions complicated by gall-stones is the removal of the gall-bladder. Unfortunately, however, this is not always easy of accomplishment. Consequently the operation of opening the gall-bladder and draining is particularly to be commended in old cases. Wherever infection exists drainage must necessarily be employed. It is safer to drain in all cases, since it cannot always be decided whether the bile is sterile. Drainage may be done by means of a tube and strips of gauze. When purulent infection of the biliary passages has taken place, thorough drainage may be effected by an opening through Morrison's pouch behind. If infection has occurred, drainage should be maintained for ten days or more.

Typhoid Epidemic at Ithaca.—Dr. Chauncey P. Biggs, of Ithaca, N. Y., said that no satisfactory proof has yet been obtained of the exact source of the contagious material which caused the epidemic of typhoid fever at Ithaca, at the beginning of the present year. Like the Plymouth epidemic, the cases of typhoid fever in Ithaca occurred only along the distribution of the water from one water company. Part of the town was supplied from another source and a number of the inhabitants obtained their water from wells. None of these suffered from typhoid fever. The snow melted toward the end of December and several freshets occurred, so that organic material found its way into the water supply. About the middle of January typhoid fever declared itself, toward the end of the month it was clear that there was an epidemic, and the epidemic was at its height at the beginning of February.

Considerations of Infection.—All the cases that occurred late in the epidemic were milder than the early ones. This would seem to be due to the fact that those infected required more prolonged exposure to contagious material, because of better resistive vitality. It may have indicated, however, a more lengthened incubation of the disease. A secondary epidemic of typhoid fever occurred in July from an infected well. This well became contaminated through a sewer pipe. The cases that occurred followed one another over a period of eleven days, though evidently the people affected had all been taking the contagious material into their systems for the same length of time.

Urinary Dangers.—It was clear that the greatest precautions would be necessary to prevent the spread of the disease. Most people were easily persuaded to take proper precautions. Those who took them realized the wisdom of this course, and usually escaped the disease. As regards disinfection, care of the urine is quite as important as that of the stools. It has been shown that in at least one-fourth of the cases the urine contains typhoid bacilli in large numbers in almost pure culture, and that they continue to be excreted for a long time after the convalescence has set in.

Cancer of the Rectum.—Dr. Wiggins presented a case of cancer of the rectum which he had operated upon five years ago. While doing the extraperitoneal operation the bowel gave way above and he had to open the abdomen. The sigmoid was found to be involved so the lower gut was swept out. Notwithstanding the apparently hopeless prognosis of the case, the patient has now lived for five years, and there are no signs of recurrence. She has been examined by a number of prominent gynecologists who say that no signs of malignant disease exist at any place.

Sewage Disposal.—Dr. Charles B. Tefft, of Utica, N. Y., read a paper on sewage disposal as a means of

purifying the water supply of the cities and towns of the State. He said that the constant growth of population in this country would eventually make it extremely difficult to obtain pure water if the present system of simply emptying sewage into the water courses continues to be practised. Practical experience has shown that by sand filtration sewage can be rendered harmless and an amount of precious manure material obtained. He suggested that this method should be adopted by even the smaller towns in order to prevent their contaminating the water courses of the State.

Removal of the Upper Jaw.—Dr. D. P. Austen, of New York City, presented a patient from whom he removed the upper jaw over thirty years ago. The operation was done for necrosis of the jaw, due to phosphorus. The man had been a worker in a match factory for some sixteen years. The scar was so little visible as to be but a slight source of disfigurement. Practically nothing in the man's appearance indicated the absence of the upper jaw. During the course of the operation a clot lodged in the man's trachea and for a time he ceased breathing. One of the physicians who was present hastily snatched a feather from a feather duster and tickled his throat, forcing him to cough, removing the clot and restoring respiration. At the time of the operation, Lister's principles of antiseptics were little understood in this country, but the cavity was packed with lint that had been soaked in weak carbolic acid and glycerin, and the result was excellent.

American Surgery and the Jawbone.—Dr. Charles N. Dowd called attention to the fact of how little deformity was caused by so serious an operation. The scar was very suitably placed and was nearly invisible. The branch of the facial nerve to the mouth had not been cut, hence there was good control of the sphincter of the mouth. American surgery has done much to advance the knowledge of surgery of the jaws. Wood's discovery, that after removal of the lower jaw the bone would grow again if the periosteum were left, was one of the most important bits of progress in surgery made in America.

Dr. J. W. Gouley presented specimens from a case of osteosarcoma of the jaw, removed successfully, and followed for five years without recurrence, and also from a case of phosphorus necrosis of the jawbone. Dr. Wiggin recalled the fact that Professor Langenbeck asked to have the specimens from Wood's case of removal of the jawbone with subsequent regrowth exhibited at the German Surgical Society, where they were received with the greatest interest. The sight of a skull with two jawbones, both of which properly belonged to it, being considered a great curiosity.

Dr. J. A. Bodine, of New York City, said that in operations upon the jaw it is possible to secure bloodlessness by passing a small rubber band around the carotid as a temporary ligature. If these cases are treated without dressing they heal more kindly than with dressing. The dressing is almost sure to become soiled with the secretions from the eyes or nose or the mouth, and thus become a source of infection.

Indications for Treatment of Pneumonia.—Dr. Delancey Rochester, of Buffalo, N. Y., said that pneumonia is now considered to be an infectious disease whose principal local lesion is in the lung. Besides the local condition there is a toxemia more or less intense which may affect particularly the heart and the kidney. Death takes place either because of the toxemia, or the invasion of so much lung as to make respiration impossible. The toxins present in the circulation cause a degeneration of the myocardium and also interfere with the elasticity of the blood-vessels, which reacts to make the work harder on the heart. The consolidated lung

causes overwork of the right heart so that the organ often gives out. The toxins may affect the brain, or may by overloading the kidneys induce uremia, causing additional symptoms.

Treatment.—The first indication is the relief of the toxemia. This must be accomplished by elimination, but as the kidneys are already irritated by the disease, stimulating diuretics are out of the question, and the bowels and skin must be called on to relieve them. The sweat of the crisis and the critical diarrhoea, shows nature's employment of these methods. Mild catharsis is best accomplished by calomel. The skin may be made active by a hot mustard foot-bath, which should be given beneath the bed-clothing with the patient's knees bent and without moving him. It should be continued for from thirty to forty-five minutes. Meantime cold cloths should be applied to the head. The mouth should be cleansed with mild antiseptics because of the presence of the *Diplococcus pneumoniae*. Considerable quantities of water should be given in small amounts at short intervals. The room in which the patient is should have direct sunlight and fresh air. Vigorous local treatment should be employed to relieve local congestions in the lungs. For this purpose leeches or dry or wet cups will be found to delay the progress of the disease until other portions of the lung clear up. If more than one lobe of the lung is affected, oxygen should be employed. In cases where there is deep toxemia, the hypodermatic use of normal salt solution or its injection by the rectum, though this is less effective, may be employed. Dr. Rochester protested against the use of digitalis with any idea of aborting the disease, as it will always run its course.

Elimination the Keynote.—Dr. A. A. Smith said that elimination must be the keynote of the treatment of pneumonia. It is not possible to abort the disease, though it sometimes aborts itself. Dr. Smith is surprised at the discussion of the treatment of pneumonia without a mention of the salicylates and creosote. Personally he has found the salicylates only a disturbing factor for the digestion. He has seen benefits from creosote, however. He does not consider that the toxemia exerts its effect directly upon the muscles, but acts also upon the nervous site, thus lowering muscular tone. It is for this reason that he employs strychnine very freely. Alcohol in doses of six to eight ounces in twenty-four hours is often useful, but in elderly people and in alcoholic subjects rather less than more than this should be employed. One member of the medical profession in New York considers his life to have been saved in pneumonia by the administration of seven quarts of whisky in 3½ days. Dr. Smith is opposed to the use of the plunge bath and prefers the cold pack, reaching from the axilla to the trochanters. The water employed should be about of the temperature of 90° F. In order to relieve the heart the blood-vessels should be dilated and for this nitroglycerin is the best remedy. The ammonium salts disturb the stomach much more than does the carbonate of ammonia.

Pneumonia as a General Disease.—Dr. W. P. Northrup said that pneumonia affects not only the lung, but the kidney, the heart and the mucous membrane of the intestines, as well as other organs. Treatment must be guided by this newer view of the disease. The poultice around the thorax should be relegated to the limbo of castoffs. He has seen a child with a temperature of 105° F. wrapped up in a poultice so tight that it could scarcely breathe, and sometimes with a tympanites which pushed its diaphragm up still further, interfering with respiration. The most important single factor in the treatment of pneumonia is the admission of fresh air in such quantities as almost to have the patient living in

the open air. It would be well if pneumonia patients could be put out on the lawn.

Dr. Bailey, of West Virginia, said that the maintenance of the external temperature is the main factor in the cure of pneumonia. When called to see children suffering from pneumonia he engages to pay their burial expenses if they die while under his charge. He keeps the temperature of the room constantly at 90° F.

Dr. DeLancey Rochester, in closing the discussion, said that he believes in venesection and employs it freely, but uses cupping for the local effect. As the salicylates are poison, and as the system is already suffering enough from poison, he does not believe in the use of the salicylates. He does not wish to be misunderstood with regard to alcohol. It is often abused to the detriment of patients.

Arteriosclerosis and the Optic Nerve.—Dr. Charles Stedmann Bull, of New York, called attention to the influence of arterial degeneration upon the vision. There are three types of arteriosclerosis: The cardiac, with early symptoms of heart insufficiency; the renal type, in which kidney symptoms early become prominent, and the diffuse type, in which rupture of the arteries in the brain is apt to be an early symptom. In the renal type changes in the retina are seen early, and in the diffuse type the eye symptoms are apt to be of help in the diagnosis of the condition. In the degenerative disease, as tabes, early eye symptoms are often warnings of the process long before any other symptoms occur. When hardening of the arteries occurs it is not unusual to find central defects of vision due to the fact that the hard artery presses upon the optic nerve, causing loss of function in its fibers. Retrobulbar degeneration may even take place in these cases. The only satisfactory treatment is to improve the general condition, and as far as possible prevent the progress of the arterial degeneration.

Dysmenorrhea.—Dr. Charles Bonifield, of Cincinnati, said that painful menstruation is either of uterine origin, or its tubal ovarian constitutional reflex. All of these etiological factors may act together, even in mild cases, to produce a form of the disease not easy to cure. When dysmenorrhea is of uterine origin it is often due, especially in young women, to failure of development of the uterus, the so-called infantile uterus, with long narrow cervix, which prevents the issue of menstrual fluid. Not infrequently in these cases there is a sudden development of symptoms which shows that an accompanying endometritis is the direct cause, though there has been for a long time the predisposition to dysmenorrhea because of the anatomical condition. Inflammatory conditions around the tube and the ovaries causes pain during the congestion incident to the menstrual period, and this is the source of the pain in these cases.

When infantile uterus exists it must be treated by dilatation and curettement if any endometritis is present, though the general condition must be improved by tonics, long hours of rest, cold baths and a nutritious diet. In these cases the condition is made much worse by sex hunger. Plays, novels, pictures and associations that are apt to be sexual excitants should be forbidden and the patient counseled to be careful to entertain, as far as possible, only wholesome thoughts.

Ehrlich's Theories.—Dr. Richard C. Cabot, of Boston, Mass., said that no discovery in medicine is likely to occupy as large a place in the medicine of the future as Virchow's cell theory, unless it be Ehrlich's recent theories with regard to the blood serum. Certainly what he has pointed out with regard to the serum supplements the cell doctrine in a very wonderful way. A half century from now his discoveries will be considered the greatest of this period.

Previous Theories as to Blood Serum.—Dr. R. C. Cabot said that no substance was considered more inert in its way than blood serum. It was looked upon as a background for corpuscles, but was considered to have little individuality. It consisted of a solution of salts in water, but scarcely more. The first discovery of importance was that of its action as a ferment. It was found to convert starch into sugar slowly, but surely. In 1888 Nuttall pointed out the bactericidal powers of blood serum. This discovery attracted very little attention, however, until after the invention of diphtheria antitoxin by Behring and Roux, when serum came into prominence and became a subject of serious study by many pathologists. When it was found that other antitoxins were not as likely to prove successful as that for diphtheria the subject lost some of its interest. Ehrlich, however, continued to devote his attention to it and the result was his brilliant theory, which is now a theme of such universal interest in medical circles.

Toxins and Antitoxins.—A toxin is a filtered sterile product of a bacterial culture. It is strongly poisonous and if injected into the body does not remain in the blood, but attaches itself to the body cells. It has a selective action, each toxin selecting a special set of cells. The toxin is inert while it is in the blood, but becomes intensely harmful when combined with the cells. There are animals who are immune to toxins, yet possess no antitoxin. This mystery was not easy to explain and it was hard to understand how there were so few toxins capable of production in cultures. As a matter of fact only three toxins have been found. Where there is no toxin it is impossible to produce an antitoxin.

Immunity.—The toxins become attached to cells as the armature attaches itself to the magnet. Ehrlich suggested as an explanation of this the theory of side-chains. The term is borrowed from the molecule of benzol, the so-called benzol ring, the free hydrogen atoms of which represent the side-chains of the cells. When a toxin enters the blood, its chemical components unite with the side-chains of certain cells, and if the cell has more than sufficient side-chains, the toxin becomes neutralized.

Serum Dissolvents.—When animals are immunized to certain bacteria the blood serum develops the property of dissolving those bacteria. Analysis of the serum possessing this power shows that there are two elements in it, one of which can be destroyed by heat. This element, however, can be replaced by simply adding fresh serum to the heated liquid. One of these elements has been called the immune body, because produced in the process of immunization, and the other the complement, because it completes the resolving quality of the serum, though of itself only a natural constituent of the serum. This immunity against bacteria because of the dissolving power of serum can also be obtained against any other foreign cells, besides bacteria. The red blood corpuscles of animals, for instance, will be destroyed by human blood serum. The goat can be immunized, to use the term that became familiar when the process was studied with regard to bacteria against the red blood corpuscles of a sheep. If the blood serum thus immunized be kept on ice, the immune body finds its way to the red cells that have been added and only the complement remains dissolved in the supernatant liquid. This question of immunizing against foreign cells may have a very practical application in the problem of cancer. An animal can be immunized against liver cells, or red or white blood cells, and therefore very probably against epithelial cells. Cancer is an overgrowth of epithelial cells with a consequent poisoning of the system and immunization might well prove protective.

Other Practical Applications.—It is difficult to distinguish human from lower animal blood. Heretofore the only means of recognition has been by measuring the corpuscles and as, for instance, those of the dog are very nearly the same size as those of man, there was always some doubt in the case. Now the medicolegal expert keeps a guinea pig immunized against the red cells of human blood. When the suspected material is added, the serum drawn from this animal precipitates the corpuscles if they are from human blood. This settles absolutely the question as to the medicolegal value of a stain that is suspected to be blood. Dr. Cabot added that it is not quite true to say that no animal blood is precipitated by the serum of an animal thus immunized, for it has been found that monkey blood is so precipitated. This gives a new light on the problem of the relationship of the monkey to man.

Precipitation and Agglutination.—The quality in the blood serum, which produces the precipitation described is called precipitin. A serum can be prepared that will precipitate the white of an egg, not of any egg, but the white of an egg of a particular bird and of no other. In the same way a serum can be prepared that will coagulate the milk of a particular animal. Agglutinin is the property of blood serum by which it causes a clumping of red cells, or of bacteria, or of white cells, or of any other cells in a liquid. This, too, is specific, that it is not true for any and every set of white cells, but for a special set from a definite animal. The complexity of blood serum can thus be appreciated. Instead of a simple liquid material containing salts and some soluble albumin in a biological sense, it becomes the container of an almost indefinite number of potencies, each of which is specific and produced by a definite biological process. Agglutinin is the principle by which thrombi are formed, and it may easily be understood that further study of this product will lead to the recognition of the measures necessary for the prevention of thrombotic processes, which, as is well known, are often very serious and so far have been unaccountable. It is even possible that methods may be discovered by which the agglutinin action will be overcome and thrombi redissolved without danger. At the present time, it is considered that such a disease as pernicious anemia is due to some product existing in the serum which causes a solution of the red blood corpuscles. It is due in a word to the presence of an autohemolysin in the blood. There is chance, therefore, that a serum may be discovered which will neutralize this.

In concluding, Dr. Cabot dwelt on the biological field for investigation that has been opened up by studies in serum. The closer animals are to man, the more nearly does their serum resemble his in its properties. On the other hand, the farther away animals are in the zoological scale the more intensely different is their reaction, in a poisonous way, to human blood serum. Eel serum, for instance, will dissolve the red blood corpuscles of man and really acts as a poison. Snake serum will do the same thing, and there seems no doubt that snake venom derives many of its extremely poisonous qualities very naturally from the fact that it is a derivative of the serum of the snake.

Minus Cylinders in Nervous Cases.—Dr. F. W. Higgins, of Cortland, N. Y., described some cases in which minus cylinders sometimes of rather high diopter had been prescribed for patients needing quite another correction for the improvement of their vision. In most cases the patients were suffering from nervous diseases and had tried several sets of glasses, none of which had done them any good, while the minus cylinders usually proved sources of irritation and discomfort. In one case a school teacher was said to be suffering from

movable kidney, which could not be found, however, on careful palpation. She was so discouraged as to be ready to give up her work. Her case proved to be one of mixed astigmatism, requiring special treatment. In one case there had been difficulty for a long time, and the eyes were evidently the seat of a serious reflex, but the underlying cause was manifestly muscular and was treated successfully by exercise.

(To be Continued.)

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Twenty-ninth Annual Meeting, held at Memphis, Tenn., Oct. 7, 8 and 9, 1903.

(Continued from Page 813.)

Chronic Interstitial Nephritis.—Dr. R. Alexander Bate, of Louisville, Ky., gave a definition of this disease, after which he referred to the anatomical changes occurring in the different forms of nephritis. The indications for surgical treatment appeared to the essayist to be limited to cases complicated by a malposition of the kidney, and to those cases in which medicinal measures had failed to arrest the destruction of the epithelium of the tubules.

The Use and Abuse of Fresh Air and Over-feeding in Tuberculosis.—Dr. W. H. Prioleau, of Asheville, N. C., pointed out the importance of supplying fresh air and nutritious food to each patient, according to the comfort of his body and the power of his digestion, remembering always that the personal equation entered into each case that was under the care of the practitioner.

Technic of Mirror Sight.—Dr. Allen De Vilbiss, of Toledo, Ohio, discussed the subject of why the general practitioner should understand the technic of mirror sight, and offered a few suggestions how to learn it.

Principles in the Treatment of Chronic Otitis Media Purulenta.—Dr. John F. Barnhill, of Indianapolis, stated that the principles upon which successful treatment of this disease must be based were both surgical and medical, and did not differ materially in their application from the use of these methods for similar conditions in other parts of the body. All aural discharges were curable by these methods, except those due to tubercle or cancer, and such cure would be simple and easy were it not for the fact of the concealed and inaccessible situation of the disease. A positive diagnosis of the conditions present was of the first importance. Drug application or surgical interference was likely to be very unwisely directed until first the cause of the discharge had been discovered. Only those most highly skilled in aural diagnosis could hope to treat successfully many cases of chronic otorrhea. If, after all parts had been thoroughly treated that were accessible to surgical and medical measures through the route of the external meatus, the disease continued, sound surgical principle dictated that the disease should be followed to its origin and thoroughly eradicated. This necessitated in most instances the radical mastoid operation. Wilde's incision or gimlet trephining of the mastoid was not based upon sound surgical principles, and should be entirely abandoned. Only that thoroughness of modern surgery in general should have any place in a consideration of the principles of otological surgery.

Dr. J. A. Stucky, of Lexington, Ky., said the fact that so much ignorance prevailed in the twentieth century among general practitioners regarding diseases of the middle ear, or otorrhea, was a reflection on the profession. There were those who still believed in the use of laudanum and sweet oil, yet it was well

known that laudanum had no place as a local application in a chronically discharging ear. Furthermore, sweet oil or any oil, except glycerin, was positively contraindicated. He emphasized the importance of thoroughly cleansing the ear, saying that while this was apparently a simple procedure, nine times out of ten it was not half done.

Naso-pharyngeal Adenoids.—Dr. J. A. Stucky, of Lexington, Ky., after discussing this subject at considerable length, presented the following deductions: The obstructive and non-obstructive adenoid tissue, when diseased, was a menace to health, hearing, mental and physical development, and should be radically dealt with. It was far more serious in its effects than disease and enlargement of the faucial tonsils. Frequently when the pharyngeal tonsil was thoroughly removed, the enlarged faucial tonsils rapidly assumed normal size and function. While this was not the rule, he had seen it occur so frequently that it was safe to say it was far more than the exception to the rule. The technic of adenectomy was simple, as compared with many other surgical operations, but should be just as conscientiously carried out. When carefully and thoroughly done, the results obtained were only equaled by some of the so-called major operations performed by the general surgeon.

Dr. A. J. Ochsner, of Chicago, said the ultimate harm to patients, if adenoids were left, was very great, as they were constantly exposed to the absorption of septic material, or extension of the infection into the Eustachian tubes. The presence of adenoids gave rise to deafness in a large proportion of cases in children, although the condition was usually considered as a complication of scarlet fever.

Dr. J. F. Barnhill believed there were affections of the stomach which arose from the existence of adenoids. While adenoids underwent atrophy very materially at puberty, yet the atrophy was to a great extent in the pharynx. The throat enlarged at this period to accommodate the adenoids better, but examination of the throat revealed in the vault of the pharynx a large cavity with many fissures, constantly filled with muco-purulent or cheesy material. The patient either coughed or spat a good deal, or else permitted this to enter the stomach and create havoc in that organ. Nearly 95 per cent. of the ear discharges that came from the Eustachian tube were the result of obstruction and infection in the adenoids themselves. When it was realized that the greatest per cent. of all ear diseases was due to adenoids alone, from a causal standpoint, it was very important to remove the cause.

Dysmenorrhea.—Dr. Emil Ries, of Chicago, after discussing the unsatisfactory condition of the present therapeutics of dysmenorrhea, described the Fliess treatment of the so-called nasal dysmenorrhea. The importance of suggestion and the toxic effects of cocaine were reviewed in their possible bearing on the treatment.

Penetrating and Perforating Gunshot and Stab Wounds of the Abdomen.—Dr. John Young Brown, of St. Louis, discussed the preparation of the patient, the search for visceral injuries, the control of hemorrhage, irrigation and drainage, closure of incision, and then reported nine cases of perforating wounds of the intestines, with six recoveries and three deaths. One death was due to shock. In this case the injury was so extensive that the patient never reacted. The second case entered the hospital with general peritonitis, and while a perforation was overlooked, it was probable that the result would have been the same if the injury had been repaired. He thought the third case should have been saved. Of wounds of the liver, five

cases in all, four recovered and one died. This case died three hours after operation from shock, which was the result of hemorrhage. The case of wound of the pancreas recovered. To these cases he added eight where laparotomy was performed, and no injury to the viscera found. This made a total of 23 cases, with 19 recoveries and four deaths.

Dr. H. H. Grant, of Louisville, Ky., said that the most important factor of all in the consideration of gunshot wounds was pretty well accepted by the profession, namely, when perforation had occurred, the abdomen should be opened promptly. The earlier the better. Should the perforations of the intestine be close together, or where there was much destruction of the intestine, it was better to resect at once rather than attempt to suture the wound and probably have leakage or subsequent contraction, which would require a second operation. In all cases in which there was perforation of the intestine, thorough irrigation of the abdominal cavity should be resorted to.

Dr. Wm. Cline Borden said that any civil surgeon would hesitate to operate on a suspected case of penetrating gunshot wound of the abdomen if he felt sure he would infect the abdomen after it was opened, and this was exactly the point the military surgeon had to bear in mind. Under the conditions which obtained in military surgery, in a considerable proportion of cases it was impossible to open the abdomen in the field hospitals without infecting it.

Dr. A. J. Ochsner said the reasons why the essayist had obtained such phenomenal success were, (1) he had seen the patients reasonably early; (2) the operations were performed with system; (3) he had made a sufficiently large incision to enable him to know positively that he had not overlooked any perforation, except in the one case mentioned.

Dr. Emil Ries said the paper was a milestone in the history of the treatment of abdominal gunshot wounds, which had been the opprobrium of surgery for many years, not on account of the imperfect work of surgeons, but owing to the unfavorable conditions under which surgeons received cases.

Dr. Arch. Dixon, of Henderson, Ky., pointed out the important lesson taught by the paper, namely, it would encourage every general practitioner to give his patient an opportunity to recover, and by resection of the intestine and the use of the Murphy button, he was reasonably certain the country physician would be encouraged to operate on some cases, and probably would save lives in the future that would otherwise be lost.

Surgery of the Thyroid; Historical and Experimental, Illustrated with One Hundred Stereopticon Slides.—Dr. B. Merrill Ricketts, of Cincinnati, read an exhaustive paper on this subject. He drew the following conclusions: (1) The thyroid is oftener abnormal than normal in size, shape, number of lobes and accessory lobes, more frequently on the left side. (2) The physiological function of the thyroid and its secretions and relation to other glands are not understood. (3) There may be but one lobe, which may be situated anywhere in the anterior, lateral, or posterior portion of the neck, or it may be intrathoracic, subclavicular, or postscapular. (4) It is the most constant of all the glands in animal life, and all vertebrates are subject to the same laws concerning it. (5) Absence of the thyroid at birth results in cretinism, and its destruction by disease, or otherwise, in advanced life induces myxedema. (6) The cause of parenchymatous goiter is unknown. (7) It may develop in fetal, infant, child, or adult life. (8) All animal life is subject to it. The cause of exophthalmic goiter is unknown. (9) Patient may or may not have protrusion

of eyeballs. (10) Lesions of restiform body in rabbits and dogs, and probably all other animals, will induce exophthalmos and tachycardia, also tremor, polyuria, glycosuria and salivation. (11) Medicaments are of no avail, except to palliate. None cured. Animal extracts are most satisfactory for palliation. Surgery offers the only means of relief. (12) Thyroidectomy is the operation of choice, is done more quickly, with less mortality, and better results. (13) Concretions may be osseous or calcareous. (14) Cysts should be removed by thyroidectomy, whether they contain blood serum, or pus of parasitic, benign or malignant origin. (15) Gangrenous and tubercular thyroid tissue should be freely excised. (16) Syphilitic gummata may be congenital or acquired, and should be subjected to syphilitic remedies to which they will yield. (17) Transplanted segments of thyroid tissue will, more or less, contain life. (18) Electricity in any shape is not only useless, but very detrimental, in that it causes the formation of adhesions, which greatly interfere with subsequent surgical operations. (19) The use of the seton, and incision into the thyroid are seldom indicated, except for the removal of concretions or foreign bodies. (20) Injections of crystals, solutions, or cautery of any character, into the thyroid for any purpose should not be tolerated. Like local applications of any character, they should be condemned and abandoned. (21) Division or resection of the thyroid isthmus does not cure. It has no place in thyroid surgery, and should become obsolete. (22) Partial thyroidectomy is the proper term, as the entire gland is seldom removed. (23) Chloroform, local anesthesia, and the use of cocaine for local anesthesia are the most desirable. (24) The mortality is less than 1 per cent. in the general application of thyroidectomy. It is the operation of choice. (25) All thyroid tissue should not be removed unless malignant. (26) Regeneration of thyroid tissue, which will secrete thyroïdin, is just as impossible as the regeneration of a finger. (27) Death from hemorrhage in thyroidectomy need not occur, as blood vessels of any size or in any location may be closed by ligature or forceps. (28) Ligation of the thyroid arteries is ineffectual and should be abandoned. (29) Compression of goiter sufficient to be beneficial will occlude the trachea and larger blood vessels of the neck. (30) Tracheotomy is indicated when the goiter presses upon the trachea or blood vessels, producing alarming effects, and then it should be done only to palliate until thyroidectomy can be performed.

Extra-uterine Pregnancy.—Dr. A. H. Cordier, of Kansas City, Mo., discussed the pathology, diagnosis, and treatment of this condition. In ten years he had encountered 54 cases. Intraperitoneal was to extra-peritoneal rupture in the proportion of three to one. The diagnosis of ectopic pregnancy prior to rupture was attended with great difficulty and was rarely made. The question of treatment of these cases was so thoroughly settled as to admit of very little discussion. The operation of choice was a median suprapubic section, with removal of the diseased structures. Vault drainage in ectopic gestation was an incomplete procedure, attended with much danger at the time of the operation, leaving the woman with a pathology that would in most instances continue to produce disagreeable or dangerous symptoms until it was completely removed.

Ectopic Gestation.—Dr. Anderson Watkins, of Little Rock, Ark., reported a case with complications. (1) The points of interest were the typical history; a long period of sterility succeeding a normal pregnancy; the absence of menstruation for four months; enlargement of the breasts; morning sickness; shedding of the decidua, and finally a feeling on the part of the pa-

tient as though she were pregnant. (2) The evident repeated ruptures of small extent, followed by sepsis. (3) The impropriety of waiting a week after diagnosis to operate. (4) The use of drainage and irrigation. (5) The complicating nephritis probably of toxic origin. (6) The intercurrent malarial infection during convalescence, and also the intestinal disturbances which were a constant drawback to improvement. (7) The location of the pregnancy, primarily tubal, although much disguised after rupture, and the exudation of plastic lymph.

The Causes of Occasional Failure of Operation to Cure Gall-stone Disease.—Dr. Wm. J. Mayo, of Rochester, Minn., said with a single exception, to which he referred later, all of the cases in which results were less perfect than were desirable, occurred in complicated cases, and it could be laid down as an axiom that delay in seeking surgical relief was the direct cause of the complication. It was the general experience that complicated cases usually had symptoms during a period sufficiently long to have made the diagnosis possible before the development of serious lesions, and that an operation at that time would have been safer and the cure more certain. He referred to the clinical fact that a small number of patients who had had a cholecystostomy performed would have a colic or two following operation, and sometimes accompanied by transient jaundice. He had seen this most frequently during the first month or two after the patient was discharged from the hospital. The most common cause of future symptoms was incomplete removal of stones. Stones in the cystic duct frequently escaped attention, and it was only after several such misfortunes that he began to exercise greater care in exploring this canal. The parts were deeply situated, and as these patients were often obese, it was not easy to locate such a calculus previous to the development of the Robson technic. In most of the cases of stone impacted in the cystic duct, cholecystectomy was indicated. One source of failure of cholecystostomy to cure was from secondary obstruction of the cystic duct, preventing free drainage of the gall-bladder down through the passages. This might eventuate in a mucous fistula, or in repeated attacks of colic, as the gall-bladder secretions were periodically forced through the strictured canal. In septic cases, drainage was necessary for a long period of time, and if the fistula was allowed to close too quickly, severe symptoms might ensue. He had twice had to reopen and re-establish drainage in septic cholecystitis. Both cases were colon infections. Stones were often overlooked in the common duct, as they might lie quiescent for years. The jaundice might be very slight, and in some cases not noticeable. The gall-bladder in the meantime might become obstructed at the cystic duct, so that this organ might be enlarged and cystic, with calculus at the neck, and nothing to call attention to the common duct stone. Chronic pancreatitis might exist at the time of operation, and to obtain a good result drainage must be long-continued. Cancer could also be said to be secondary to stone formation, and might take place after cholecystostomy, or, being present, might be mistaken for inflammatory disease. All thick-walled gall-bladders should be looked upon as suspicious, and as they were functionally useless, cholecystectomy should be done rather than cholecystostomy, and in this way many early cancers would be found and cured. Persistent biliary fistula usually meant obstruction of the common duct. Everyone understood the importance of not attaching the gall-bladder to the skin. In the early days persistent biliary fistula was usually due to a mucocutaneous suture. This practice was now obsolete. The turning in of the margins of the incision of the gall-bladder, and draw-

ing a purse-string suture closely about the drainage tube in a similar manner to a Kader gastrostomy enabled healing of the fistula to take place most promptly after removing the drain. Secondary operations had been comparatively safe in his experience. The patient had become accustomed to the condition and the adhesions formed a protective barrier. Separation of the adhesions, particularly about the liver, resulted in considerable hemorrhage. Rather prolonged gauze pressure usually checked the oozing as the blood pressure in the liver was very low and enabled completion of the operation. Most of the cases required a light gauze drain protected by gutta percha tissue at points of contact, with the stomach or intestines, to prevent troublesome adhesion to the gauze. Deep drains should be anchored with catgut to prevent displacement by movements of the liver, as effected by the diaphragm. The catgut became absorbed before the time for withdrawal. The drains should not be removed too early, six to twelve days being the usual limit as to the time of withdrawal.

The Diagnosis and Operation for Gall-stones.—This topic was discussed by Dr. W. D. Haggard, of Nashville, Tenn. The most valuable local sign was hypersensitiveness under the tip of the ninth costal cartilage. The best way of eliciting this sign was described. A distinct tumor was not often felt, and was therefore not diagnostic of gall-stones. In long-standing cases of inflammation in and around the gall-bladder, an ill-defined tumor was present, but the tenderness precluded its exact definition. Hydrops from a stone in the cystic duct gave the typically enlarged gall-bladder, and empyema was also characterized by tumefaction. Stones in the gall-bladder without inflammatory or other complications were never attended by enlargement, and empyema was also characterized by tumefaction. An enlarged gall-bladder meant there was no stone in the common duct, as enunciated by Courvoisier. This was a most valuable differential sign. In biliary obstruction manifested by chronic jaundice, an enlarged gall-bladder meant that the obstruction was not due to a stone. Jaundice following attacks of biliary colic was not necessarily due to calculous obstruction, but was usually caused by an inflammatory turgescence of the bile tract that offered a certain resistance to the outflow of bile. The author reported a case which illustrated this point. The complications of gall-stones were next considered, and among other things the essayist stated that aside from the difficulty of discriminating between gall-stones and certain stomach, appendix or kidney lesions, it should be remembered that they might coexist with any one of them. He narrated a case of coincident biliary and renal calculi in which the diagnosis at first was very much involved. The technic of the various operations on the biliary passages was described.

Dr. H. H. Grant said whenever the existence of disease of the gall-bladder was suspected with anything like reasonable probability, an exploratory operation was justifiable. It was more prudent to resort to this measure than to allow the disease to continue until such serious complications had arisen as were mentioned by both of the essayists. He had found the gall-bladder much more accessible since carrying out the suggestions of Robson of increasing the incision toward the xiphoid cartilage, so as to make the liver more accessible, and to command a better view of the ducts themselves.

Dr. Lewis S. McMurtry stated that during the last month a patient had been lost after an operation for gall-stones. It was a late operation. The patient had no jaundice. He removed forty-four stones from the

gall-bladder. The gall-bladder and the adjacent ducts were matted together with old adhesions. He passed his finger along the cystic and common ducts, and worked out a number of stones from the cystic duct. The gall-bladder was much contracted by long-standing inflammatory changes, and he felt the patient was in good condition to recover. Just as soon as the patient came out from under the influence of the anesthetic, he developed symptoms of intestinal obstruction, and died on the fifth day, with well-marked symptoms of intestinal obstruction. Post-mortem examination revealed seven stones outside of the duct, and the duodenum closed by a band of adhesions, which, he presumed, made traction upon the gall-bladder and ducts, the suturing making it taut, so that it increased the obstruction from which the patient died.

The Prophylaxis of Tetanus.—Dr. S. C. Stanton, of Chicago, contributed a valuable statistical paper on this subject. Prophylaxis was considered by him under five heads: (1) The enforcement of existing laws regarding the sale of toy pistols and other dangerous toys. (2) The enactment of laws by Congress, State legislatures, and municipalities prohibiting the manufacture and sale of toy pistols, blank cartridges, dynamite canes and caps, cannon crackers, etc. (3) The open treatment of all wounds, however insignificant, in which from the nature or surroundings there was any risk of tetanus. (4) The immediate use of tetanus antitoxin in all cases of Fourth of July wounds, wounds received in barnyards, gardens, or other places where the tetanus bacillus was likely to be present, or tetanus infection to occur. (5) The injection of tetanus antitoxin as soon as tetanic symptoms became manifest.

Indications and Technic of Prostatectomy.—Dr. G. Frank Lydston, of Chicago, pointed out that the senile prostate was an atrophied prostate. Catheter life lasted about five years, although Reginald Harrison had put it at four years. In referring to the pathology of prostatic hypertrophy, he expressed the belief that the tumor was purely adenomatous at the outset. Several specimens of prostates which had been removed by him were exhibited. He had no hesitation in saying that early operations on the prostate in otherwise healthy subjects were no more dangerous than interval operations for appendicitis. The perineal operation should be performed whenever practicable, but he was aware that there were cases which could not be dealt with successfully by this route; therefore, it might become necessary to do a combined perineal and suprapubic operation.

Everyday Surgery.—Dr. Alexander R. Craig, of Columbia, Pa., described a few cases of gunshot wounds he had seen in his general practice.

Dr. H. J. Whitacre, of Cincinnati, discussed the Pathology and Treatment of Gangrene of the Lower Extremities.

Surgery of Pulmonary Gangrene.—Dr. L. L. McArthur, of Chicago, after reporting three cases representing three varieties of gangrene, presented the following conclusions: (1) That since by medical treatment 80 per cent. of the patients die, and in those operated about 29 per cent., efforts should be surgical. (2) That while it was anatomically possible to separate the pleura from the chest wall, it was tedious, difficult, and often futile (due to puncture), and therefore, not much valuable time should be lost in such efforts. (3) That circular suture combined with gauze pressure packing for forty-eight hours is the best means of inducing adhesions. (4) The X-ray might give valuable aid in localization. (5) Great care should be used in the selection of cases for operation, but when localized

and single, the most desperate cases should be given a chance, as they frequently recovered with drainage.

The Present Status of Stomach Surgery.—Dr. A. J. Ochsner, of Chicago, said that in the diagnosis of surgical diseases of the stomach great difficulty was occasionally found in eliminating cases suffering from gastric disturbances due to general neurasthenia, because the latter condition was frequently the result of gastric disease, which could be relieved by surgical means. Among the conditions which simulated stomach disease, gall-stones undoubtedly stood first in point of frequency, and not infrequently the adhesions accompanying the presence of gall-stones resulted in a distortion of the pylorus, which virtually caused an obstruction. One condition which the surgeon encountered occasionally was locomotor ataxia, with marked pain in the region of the stomach. This condition was easily detected during a careful examination, but it had occasionally been overlooked. Of all the operations employed in stomach surgery, gastro-enterostomy was the most commonly indicated, because it supplied drainage of the organ, and as the want of this drainage was the cause of most of the surgical diseases of the stomach, its accomplishment must necessarily be of the greatest importance. Pyloroplasty was still under observation. Mikulicz, Finney, and a few other surgeons had spoken well of the operation in selected cases of cicatricial constriction of the pylorus. The author's own experience had not been satisfactory with this operation. The method introduced by Finney was undoubtedly the best. The results of pylorotomy would undoubtedly be more and more satisfactory, because these patients were likely to come to the surgeon before the carcinoma had advanced to the hopeless condition usually encountered at the present time. The results of Mikulicz, Kocher, Czerny and a few others were even at the present time sufficiently satisfactory to warrant the operation. Gastrectomy was indicated in only a very small number of unusual cases. Gastrostomy was indicated in all cases of obstruction of the esophagus due to carcinoma in which starvation was imminent. The patient received a great amount of comfort from this operation. As to gastro-duplication, this operation would hardly again receive any prominence, because the same end could be obtained so much more certainly, safely and easily by making a gastroenterostomy. As to elevating the stomach in gastropexy, this operation was on trial. It had not obtained a permanent position, although a few surgeons had spoken well of it. The writer's own observations and a study of the literature of the subject had forced upon him the opinion that in cases in which severe pathological conditions of the stomach existed, which could not be relieved medically in a reasonable period of time, and which could neither be traced satisfactorily to a neurosis not secondary to gastric disease, nor to other conditions, it would seem proper to attempt relief by the use of surgical treatment early in the course of the disease.

Treatment of Tuberculous Joints.—Dr. David C. Peyton, of Jeffersonville, Ind., said the surgical treatment of tubercular joints presented for consideration the following operative procedures, according to the state of advancement of the joint involvement: Arthrotomy, arthrectomy, excision or resection, and amputation. By the early and free opening of the affected joint, thus insuring free drainage, and thoroughly irrigating it with a hot normal saline solution, the writer had obtained very satisfactory results. The irrigation should be repeated daily for a week or ten days, or even longer, according to the degree of involvement. Even where the process had proceeded to suppuration

or beginning necrosis, one might expect most marked benefit from this plan of treatment, and which was especially to be commended in all patients under eighteen years of age, for by the more radical operations the surgeon might destroy the epiphyses, with consequent arrest of development or growth. However, in the advanced state of the disease, whether in the adult or the child, the more radical operations were not only advisable, but imperatively demanded, to save usefulness of limb, and sometimes life. Where necrosis with fistulae had formed, their removal by arthrectomy or excision was insisted upon. It was especially in the smaller joints that the most satisfactory results were obtained by arthrotomy and arthrectomy.

Treatment of Compound Fractures, Immediate and Remote.—Dr. Frederic A. Besley, of Chicago, discussed the causes of these fractures and the pathological conditions usually met with. He divided the treatment into the (1) primary treatment of the wound; (2) the application of an immobilizing dressing; (3) subsequent dressings of wound; (4) methods of procedure in the event of suppuration; (5) treatment of non-union of the fragments. These several divisions were taken up and expatiated upon.

The X-ray in Fractures.—Dr. Duncan Eve, of Nashville, Tenn., said that at present the X-rays were of more assistance in the investigation of the pathology of fractures than in their treatment, and the more precise the knowledge of the pathology, the more satisfactory the treatment. The exact diagnosis of fractures of certain bones without an X-ray examination was always open to doubt. In order to secure the best results from the Roentgen rays, not only must the apparatus be good, but the man who uses it must have experience.

GERMAN SURGICAL SOCIETY.

Thirty-second Congress, held in Berlin, June 3, 4, 5 and 6, 1903.

(Continued from Page 767.)

Cancer of Stomach and Intestines.—W. Petersen is firmly convinced that gastric and intestinal cancers grow from one center, as serial sections show a continuous relationship between all parts of the tumor, since a sharp line of demarcation between carcinomatous and normal cells is found everywhere and since a purely interglandular growth is frequently encountered. The peripheral portions are thus unsuited for the study of histogenesis, nor is this method of growth compatible with a parasitic theory. In the stomach extension is generally within the wall, and the pylorus does not act as barrier; in the intestines the tendency is more to extend away from the walls into the surroundings. Probably carcinoma cells left behind after operation do not always give rise to recurrence. The following interesting clinical statistics were collected. In 248 operations for rectal cancer the mortality was 13 per cent. Permanent cures were achieved in 18 to 20 per cent. Thirteen patients lived more than ten years. In 214 gastro-enterostomies for cancer, the mortality was 35 per cent. at first; in the last 100 it was only 18 per cent. The operation prolongs life four to five months. In 57 resections the mortality was at first 35 per cent., later 17 per cent. The most successful cases here lived twelve, eleven, five and four years. Resection is not more dangerous than gastro-enterostomy since the danger of pneumonia is not so great. The chances of a radical cure are greater and even where recurrence takes place, life will be prolonged for nine months. König does not believe that cancer cells enclosed in

lymph-nodes are destroyed, though they may remain latent for twelve to thirteen years.

Abdominal Resections of the Rectum.—Schloffer describes an abdominal method of resecting the rectum for carcinoma which permits of removing all the diseased gut and involved glands more readily than any operation from below. It is especially indicated in high tumors and lean individuals. Kümmel first does a laparotomy to free the mesorectum. The tumor is then removed from below.

Spleen Surgery.—Jordan demonstrates a number of spleens that were removed successfully.

Operation for Stenosed Papilla.—A case suspected of malignant tumor of the papilla vateri was operated by Körte but when the duodenum was opened, the cause of the jaundice and distended gall-bladder were found to be a stricture at the lower end of the choledochus. It was split and a tube then passed into the pancreatic duct which permitted a close study of the pancreatic secretion. With empty stomach 14 to 18 c.c. per hour were secreted, but five hours after the ingestion of food the amount increased to 50 c.c. The proteolytic ferment formed only on admixture with intestinal juice and the latter also increased the action of the saccharifying substance. In another case of cicatricial stenosis the patient died thirteen days after operation of hemorrhage from a gastric ulcer. Two cases operated for carcinoma of the papilla died a few days after excision.

Subcutaneous Rupture of Biliary Passages.—Six weeks after F. Hahn's patient had been run over there was extreme emaciation, enormous swelling of the abdomen and considerable dyspnea and tachycardia without fever or jaundice. On laparotomy, chronic peritonitis with free bile in the abdomen was discovered, which made a subcutaneous rupture of the biliary passages probable. The site of rupture could not be found but firm tamponade effectually closed the opening and eventually healed the tear.

Pathogenesis and Therapy of Acute Pancreatic Hemorrhage.—The results of operation for acute pancreatic disease have been so unsatisfactory that the majority of surgeons prefer to await the chronic stage. Bunge, however, reports a typical case of hemorrhage which was saved by tamponade of the bursa omentalis from in front and tamponade beneath the mesocolon. The convalescence was complicated by profuse suppuration and glycosuria. Bunge recommends operation in the acute stage, provided the pancreas is tamponed off so as to avoid infection of the general peritoneum. He believes that most of the hemorrhages are due to embolic processes since experimental injection of oil into the pancreatic vessels caused similar lesions. Von Beck saw three cases of pancreatic hemorrhage secondary to operations on other parts of the body.

A New Cystoscope.—A disadvantage of instruments which photograph the interior of the bladder lies in the fact that the bladder cannot be viewed at the same time. Hence L. Casper constructed a cystoscope with double prism which will also permit two observers to view the same field and hence is invaluable for demonstration.

Disinfection of Silk Catheters.—Boiling catheters in a concentrated solution of ammonium sulphate does not alter them, but the crystals which adhere are disagreeable. Heusner then experimented with a number of other substances and found that saturated sodium sulphate and 10 to 15 per cent. sugar solution behave similarly. The best results were obtained by heating the catheters in liquid paraffin over the water-bath. Ureteral catheters must be preserved dry but the ordinary catheters can be kept in the oil.

Contributions to Genito-urinary Surgery.—In the 14 cases of prostatic hypertrophy operated upon by Kutner, according to Bottini's method, there was marked improvement in ten. During the operation there are hardly any dangers if the assistance is good; after the operation fever or hemorrhage may appear but is generally not serious if the after-treatment is managed properly. Kutner then demonstrated a bladder stone weighing fully a pound and three ounces. Its removal necessitated large lateral incisions into the bladder and the use of the obstetrical forceps. A sterilizer for elastic catheters and a demonstration cystoscope were also shown.

Beginning Prostatic Hypertrophy.—A. Rothschild's contribution on the early changes in prostatic hypertrophy has already been published in *Virchow's Archiv*.

Urethra in Prostatic Hypertrophy.—By injecting gelatin into the bladder from the renal pelvis, Reerink found stenosis of the orif. int. vasc. in two cases, marked tumefaction of the median lobe with dilatation of the pars prostatica in 3, and dilatation of the orific. int. in the remaining 11 with uniform distention of the entire pars prostatica up to the normal pars membranacea. A relatively high position of the bladder is not characteristic for enlarged prostate; it may also occur when the bladder is filled from the ureters. In the 3 cases with large median lobe a valvular closure at the urethral orifice did not take place even when more than a quart was injected. In cases of wide internal orifice with dilated prostatic urethra, the speaker thinks our present methods inadequate. Bottini's method in particular does little good here. In some cases, median section with drainage is sufficient, for the majority, however, perineal prostatectomy is indicated.

Perineal Prostatectomy.—In the cases seen by Voelcker, a prostatectomy was only done because systematic catheterization was impossible on account of severe cystitis, frequent hemorrhage, incontinence, chills, complications on part of the testes, etc. The small, firm hypertrophies with marked obstruction were generally treated according to Bottini, while large, soft tumors seemed to be more suited for prostatectomy. In performing this operation one must strictly remain within this capsule and care must be taken not to divide the anterior wall of the urethra. The bladder is drained from the perineum for eight days, after which a permanent catheter is placed into the urethra.

Perineal Cystotomy.—On account of the high mortality of suprapubic cystotomy, R. Frank recommends a perineal method of opening the bladder, which is performed as follows: A transverse incision is made between bladder and rectum up to Douglas' fold and the latter then pushed upward with the fingers. By introducing specula a large portion of the floor of the bladder may be opened. The operation is particularly indicated in stones and other foreign bodies, papillomata and cancer. The after-treatment is simpler and shorter than in the suprapubic operation, since rest in bed is necessary only for eight to ten days.

New Canula for Bladder.—Werckmeister's instrument was constructed to avoid accidental slipping of the drainage tube out of the bladder. It is made of silver and closely resembles a tracheal canula. Where permanent drainage is desired this instrument fills a long-felt want. It may also be used in stomach and gall-bladder fistulae.

Methods of Diagnosis in Renal Disease.—A most excellent résumé by Kümmel gives a comprehensive idea of the value of recent methods (X-ray, cystoscopy and cryoscopy) in the diagnosis of pathological conditions in the kidneys. We no longer diagnose renal

stone and then search in vain for the calculus after the kidney is bisected, nor do we watch patients after nephrectomy with anxiety for fear that the other kidney is incapable of removing all the waste products. Renal diagnosis can now be practiced with a precision which is hardly possible in any other part of the body. Every renal stone, no matter what its composition, will throw a shadow upon a good Roentgen plate. Conversely, it may be stated that where there is no shadow, no stone will be found. It is necessary to have the patient in a good position and to use a soft tube and to employ several plates rather than one, so that there will be no question about shape and position. Usually the shadow is found several centimeters lateral to the vertebral column, somewhat beneath the twelfth rib at the level of the second lumbar vertebra, unless the shape or position of the kidney itself has changed. Even renal sand will throw a distinct shadow. The plate should be well illuminated when examined and sometimes inspection by means of an opera-glass is desirable. The advantages of the cystoscope and ureteral catheterization are too well known to require much discussion. Sounding the ureters is not a dangerous operation and is to be preferred to the various segregators on the market, unless the openings cannot be found. In children there may be some difficulty in introducing the instrument, but a girl of fourteen years and a boy of fifteen years could be readily cystoscoped. Narcosis may here be necessary, but in adults a 1- to 2-per-cent. eucaïne or a 1-per-cent. antipyrin solution will reduce the sensibility of the bladder even in nervous individuals. Equally satisfactory results were obtained with the determination of the electrical conductivity of urine and blood and more particularly with cryoscopy which has proved an accurate measure of the osmotic concentration. Where blood is to be examined 15 or 20 c.cm. are removed from the arm by means of a sharp canula, then defibrinated by means of a platinum ring and finally frozen in the Beckmann apparatus. The bulb of the thermometer must be entirely submerged in the fluid without touching the bottom and the fluid must be kept in constant motion. The mercury will first drop, then will suddenly rise and come to a stop at a point which indicates the freezing-point of the fluid examined. A small δ and a capital Δ are used arbitrarily to denote the freezing-point of blood and urine respectively. In normal cases δ was found to vary from 0.53 to 0.57 and in diseased conditions, such as typhoid, normal figures were also obtained, provided the kidneys were not affected. The mechanism by means of which the blood-concentration is regulated must be a very delicate one, since in one case the freezing-point was again normal four hours after a venesection. The freezing-point of urine varies within much wider limits; thus 0.9 to 2.3 must be looked upon as normal. When both kidneys were undoubtedly diseased (chronic nephritis, bilateral pyonephrosis, tuberculosis, etc.) δ varied between 0.58 and 0.81. The severest cases gave the highest figures and in progressive cases there was a distinct parallelism between the symptoms and the value of δ ; Δ fluctuated between 0.9 and 0.2, though in one case 1.0 was obtained. In non-compensated cardiac failure, eclampsia, diabetic coma, epilepsy during the attack and cirrhosis of the liver the concentration of the blood may also be increased but these conditions can be easily ruled out. Misleading figures were only obtained in severe cachexia. In the third group of cases, where only one kidney is affected, cryoscopy is undoubtedly of the greatest value as it indicates at once if nephrectomy is permissible. The blood may here be used for examination or else the ureters are catheterized and the freezing-point and percentage of urea

determined of both urines. Normally the figures are approximately alike on both sides, but in unilateral affections marked differences exist. Sometimes the renal function returns rapidly after a stone is extracted, thus in one case of nephrotomy, Δ rose from 0.52 to 1.02 in ten days after the operation. In the cystitis of cases with enlarged prostate, cryoscopy is of great prognostic value. Thus in one case there were no symptoms pointing to pyelitis yet the freezing-point of the blood was found to be 0.71. The patient died soon afterward and an advanced pyelonephritis was found at autopsy, which had been entirely latent during life. It is well-known that uremia may set in suddenly without prodromal symptoms but cryoscopy will enable us to suspect the imminent danger and to avoid operations which would certainly be fatal. On the other hand, a normal freezing-point will justify a prostatectomy or some similar measure for the patient's relief. Recently the statement has been made that chronic nephritis occasionally may be a unilateral process, amenable to surgical treatment. In a large number of acute parenchymatous and chronic interstitial forms examined by Kümmel, no marked differences in the urine from both sides was found, except that the amount of albumin occasionally varied. Owing to the fact that a nephrectomy was never attempted where the freezing-point of the blood made renal insufficiency probable, the mortality of kidney operations was considerably reduced. Kümmel's mortality, before cryoscopy was introduced, was 28 per cent., at present it is only 8 per cent. The value of cryoscopy was demonstrated again and again at every autopsy and Kümmel believes it to be one of the most valuable methods ever applied to surgical diagnosis.

Functional Renal Diagnosis.—Barth's paper is on the same subject as Kümmel's but his conclusions are not quite so enthusiastic. The urine of the diseased or of the more diseased kidney always gives a lower freezing-point. The difference between the two figures will give an idea as to the degree of destruction. If both sides are diseased, a marked difference will indicate that one side is much more involved than the other. Where there is only a slight difference the process is in its incipency, provided the freezing-point is near normal. If the examination takes place at a time when the total excretion of molecules is small, we may get a slight difference, though one kidney is normal and the other much destroyed. Thus in one case of renal tuberculosis, $\Delta = 0.76$ on the diseased side and 0.82 on the well side. After phloridzin injections the sugar excretion is generally somewhat less marked on the side of lesion. When completely absent, the kidney was almost totally destroyed. As a rule, however, the extent of the lesion cannot be gauged by the degree of glycosuria. There is as yet no really absolute method which will express renal sufficiency in figures and oftentimes a simple chemical and microscopical examination of both urines will tell as much as cryoscopy and phloridzin. Functional diagnosis, however, has a decided value in differentiating between renal stone and interstitial nephritis with hemorrhage and colicky pain, since the former is usually unilateral and the latter generally bilateral, though symptoms occur only on one side.

Electrical Conductivity and Functional Renal Diagnosis.—F. Löwenhardt thinks that functional renal diagnosis is not so accurate as some believe. The vicarious and compensatory action of heart, intestines, salivary glands and skin in kidney disease is a factor which we cannot measure accurately. Cryoscopy does not take into account the size of the molecule so that there need be no change in the freezing-point in certain severe cases of nephritis where toxic substances with large molecules are held back in the blood. Löwen-

hardt generally prefers to determine the electrical conductivity, which is always higher on the healthy side and is a constant factor in normal kidneys. He then demonstrated a patient with severe pyelonephritis on the left side and a large pyonephrosis on the right. The results of all examinations contraindicated operation. A catheter introduced into the right ureter, drained the abscess for a while and then suddenly stopped functioning. Since the patient's condition became worse, right-sided pyelostomy was done. Repeated attempts at reintroducing the catheter from below were finally successful, and after six months the fistula closed and the patient was much improved.

X-ray Photographs of Renal and Biliary Stones.—All stones of the kidney and ureter give good X-ray pictures, no matter what their composition. Treplin has not, however, had the same success with gall-stones on account of their softness and their unfavorable position. Stones in the gall-bladder are especially unsuited, since the bile itself will throw a shadow. Stones in the cysticus and choledochus may give good pictures if the patient is not too stout.

Anatomy of Ureters.—Zondek points out that the ureter is not a cylindrical tube but presents certain physiological stenoses and dilatations. The former may prevent the passage of a catheter, while the latter may permit a stone to lodge. The peculiar shape of the ureter is congenital and the changes which take place after birth are slight. An anomaly which is rather frequent is the presence of a double pelvis at the mesial side of the kidney; here only half of the organ may be diseased so that a resection would be indicated. A second kidney is generally present, since the anomaly is not caused by a union of two kidneys but by a splitting of the ureters. It may be difficult to detect the ureters or pelves during operation since they are much smaller than where only one is present. A number of less frequent anomalies were then demonstrated.

Subcutaneous Renal Injury.—The large number of cases recently published prove that slight renal injury is frequent and of good prognosis if treated expectantly. In many there is no hemorrhage and only transient albuminuria. Even the most severe tears heal readily if suppuration does not follow. According to Riese the prognosis is anything but favorable, however, where the entire organ is contused, the vessels torn off or the peritoneum injured. Hemorrhage, abscess-formation and peritonitis are the main dangers here. The hemorrhage is apt to be most severe if the peritoneal cavity is opened, since the blood will find little resistance. The symptoms of severe hemorrhage are the constitutional signs of acute anemia, together with abdominal tenderness and the appearance of a movable dulness in the dependent portions of the abdomen. Nephrectomy is only indicated if the bleeding cannot be checked by ligature and tamponade. Subsequent operations for aneurism, suppuration, necrosis or saculation is often necessary. The mortality is as follows: In 85 cases treated expectantly, 11.7 per cent.; in 79 cases with nephrectomy, 18.9 per cent. Körte advises expectant treatment in subcutaneous rupture. Von Beck advises rest, ice, ergotin and infusion. He was never obliged to do a primary operation.

Case of Renal Sequestrum.—Löwenhardt observed a case of ascending pyelonephritis caused by pneumococci which seemed to demand operation until pieces of renal substance were voided through the ureter and the process came to an end.

Metastases of Renal Tumor in Bronchial Lymph-nodes.—During a nephrectomy for hypernephroma, Billroth accidentally opened the pleural cavity. Ten years later the patient was seen by P. Clairmont with severe pulmonary symptoms (dyspnea, hematemesis,

fever). At autopsy the lymph-nodes were found to be the seat of a hypernephroma which had remained latent for so many years owing to unfavorable surroundings.

Treatment of Cryptorchism.—According to Riedel, the greatest difficulty in treating retained testicle, is the management of the spermatic vessels. They must generally be separated from the vas and dissected free for quite a distance into the pelvis before the testicle can be pulled down sufficiently. A mattress-suture is generally sufficient to fix the organ in the scrotum. Heidenhain generally applies a truss if the testicle can be pulled in front of the outer ring. König mobilizes the spermatic cord by dividing the vasa epigastrica and the fascia through which they run.

Advances in Gynecological Operations.—By means of hot water—alcohol—sublimate disinfection of the hands, Dührssen could reduce the mortality of gynecological operations to 1.2 per cent. Even this low mortality could have been avoided if the patients had presented themselves earlier for operation. In vaginal operations the mortality was nil. In 76 cases Dührssen saw pregnancy with normal course after vaginifixture for retroflexion so that there is no excuse in still favoring Alexander's operation. The least dangerous operation for fibroids is vaginal extirpation of the tumors by means of a vaginoperineal incision, bisection of the uterus, morcellement and enucleation. For tumors the size of a head and larger, ventral hysteromyectomy is best. Drainage, when necessary, should be by way of the vagina by means of iodoform gauze. In suppurative infiltration of a broad ligament, the ligament must first be dissected free from the uterus.

Vaginal hysterectomy for carcinoma is indicated only when the tumor involves the body.

A New Splint.—Vulpis demonstrates a new splint of aluminum which is light, portable, easily cleaned and can readily be modeled to any size or shape. Bender also showed a practical splint consisting of wire surrounded by layers of plaster-of-Paris bandage.

Massage Treatment of Recent Fractures.—Jordan says the massage treatment requires much time, patience and experience but its advantages are so obvious that it will in time replace the older methods.

Case of High Shoulder from Muscular Contraction.—An eighteen-year-old girl, observed by Manasse, was suffering from a tonically contracted levator anguli scapulae, which caused considerable deformity. After dividing it and the rhomboids and resecting the upper internal scapular angle, the shoulder dropped to its normal position but in seven weeks the condition recurred. The muscles were then resected, after which the cure was permanent. Subsequent clonic twitchings required galvanism.

Rare Case of Lymphangioma Caverosum.—In Katholicky's patient the left hand and fingers were much swollen, the skin everywhere tense, thin and translucent. Small cysts projected above the surface between the fingers. The forearm was shortened and swollen, its skin reddish-brown and rough. By firm pressure on the hand the swelling could be displaced up to the elbow so that the thin remnants of phalanges and metacarpal bones could be readily felt. A radiograph clearly demonstrated advanced destruction of these bones and of the radius and ulna. Complete loss of function was present in the extremity, but pains were not complained of. The condition existed at birth and had gradually increased in size during fourteen years. Payr has employed magnesium arrows with good result in facial hemangioma. Extirpation is here facilitated by multiple thromboses. Von Bramann has observed a similar case, which he improved with injections of one per cent. carbolic acid. Von Beck reports a lymphangioma of the arm, which sloughed after an enteritis.